AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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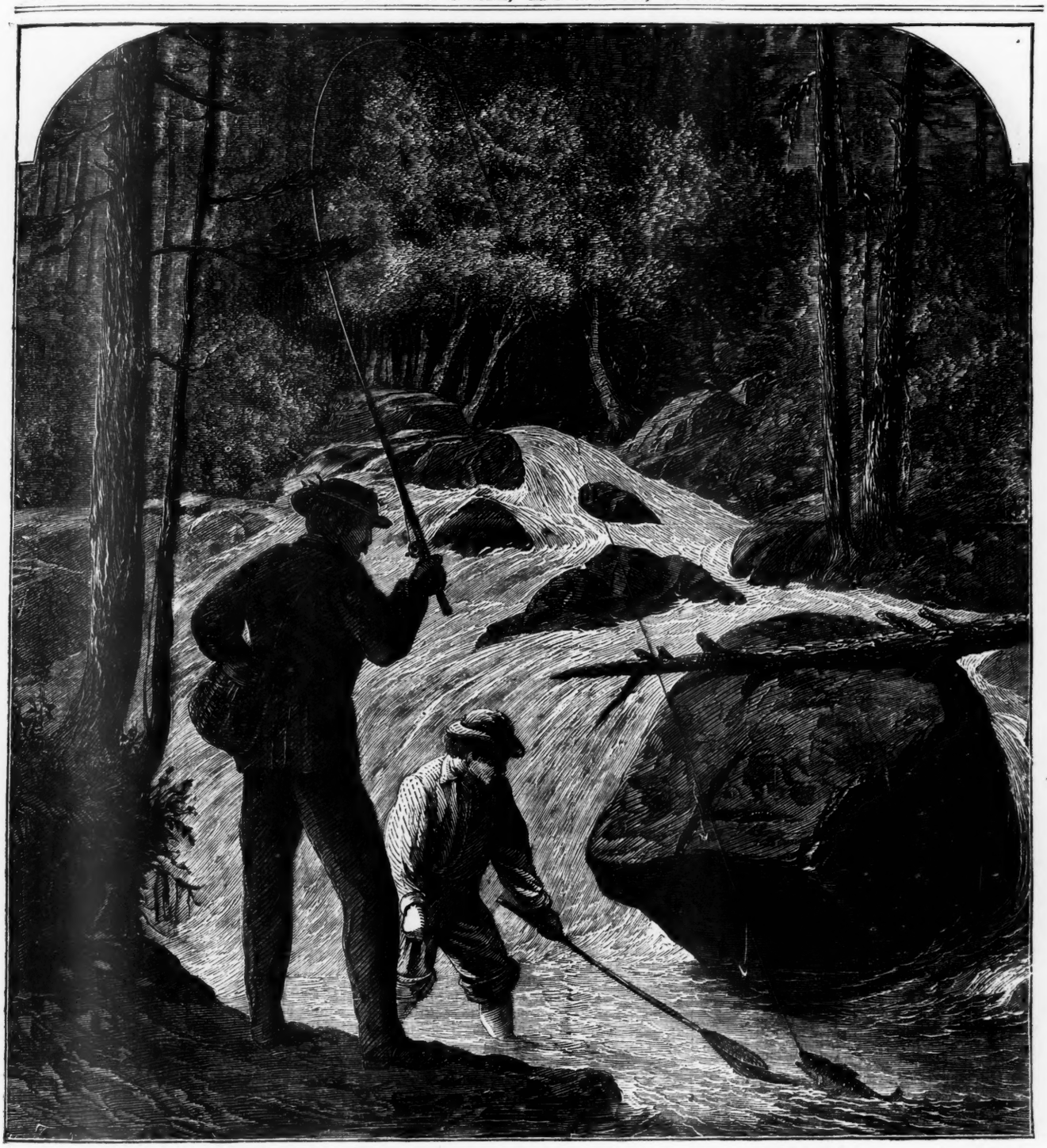

A FARMER'S HOLIDAY AT THE TROUT STREAM.

What have farmers to do with a sporting scene, and sport? some Gradgrind may ask. In our view much! Work, hard work, and plenty of it, is the lot of every successful farmer. But the farmer's life should not be all work; he of all men deserves, for he fairly earns, his term of recreation, and he should have it too. Many find their highest enjoyment in angling. If it is proper for any one, the sport is proper for the farmer, if his tastes so incline, when he leaves his toil for a change of scene. A day by a wild mountain stream, in the dark, still pools, where the trout await his coming, will furnish immediate pleasure, but its greatest value will be in the after-memories that will go far to make present labor lighter.

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Calendar for August, 1880.

Day of Month.	Day of Week.	Boston, N'Engl'd, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	S	4 52	7 20	0 35	4 56	7 16	0 41	5 1	7 11	0 48
2	M	4 53	7 19	1 26	4 57	7 15	1 32	5 2	7 10	1 39
3	T	4 54	7 18	2 22	4 58	7 14	2 28	5 3	7 9	2 34
4	W	4 55	7 16	3 22	4 59	7 12	3 27	5 4	7 8	3 33
5	T	4 57	7 15	sets	5 0	7 11	sets	5 4	7 7	sets
6	F	4 58	7 14	7 13	5 1	7 10	7 11	5 5	7 6	7 10
7	S	4 59	7 13	8 38	5 2	7 9	7 37	5 6	7 5	7 36
8	S	5 0	7 11	8 2	5 3	7 8	8 2	5 7	7 4	8 3
9	M	5 1	7 10	8 26	5 4	7 6	8 28	5 8	7 3	8 30
10	T	5 2	7 9	8 53	5 5	7 5	8 56	5 9	7 2	8 59
11	W	5 3	7 7	9 23	5 6	7 4	9 27	5 10	7 1	9 32
12	T	5 4	7 6	9 59	5 7	7 2	10 5	5 11	7 0	10 10
13	F	5 5	7 4	10 41	5 8	7 1	10 50	5 12	6 58	10 56
14	S	5 6	7 3	11 37	5 9	7 0	11 44	5 13	6 56	11 51
15	S	5 7	7 1	morn	5 10	6 58	morn	5 14	6 55	morn
16	M	5 8	7 0	0 41	5 11	6 57	0 48	5 14	6 54	0 54
17	T	5 9	6 59	1 53	5 12	6 56	1 59	5 15	6 52	2 5
18	W	5 10	6 57	3 9	5 13	6 54	3 14	5 16	6 51	3 19
19	T	5 11	6 56	4 26	5 14	6 53	4 29	5 17	6 50	4 33
20	F	5 12	6 54	rises	5 15	6 52	rises	5 18	6 49	rises
21	S	5 13	6 52	7 16	5 16	6 50	7 17	5 19	6 47	7 18
22	S	5 15	5 51	7 43	5 17	6 48	7 44	5 20	6 46	7 46
23	M	5 16	6 49	8 9	5 18	6 47	8 12	5 21	6 44	8 15
24	T	5 17	6 48	8 38	5 19	6 45	8 42	5 22	6 43	8 46
25	W	5 18	6 46	9 10	5 20	6 44	9 16	5 23	6 41	9 21
26	T	5 19	6 45	9 48	5 21	6 42	9 54	5 23	6 40	10 0
27	F	5 20	6 43	10 30	5 22	6 41	10 37	5 24	6 38	10 43
28	S	5 21	6 41	11 19	5 23	6 39	11 25	5 25	6 37	11 32
29	S	5 22	6 40	morn	5 24	6 38	morn	5 26	6 35	morn
30	M	5 23	6 38	0 13	5 25	6 36	0 19	5 27	6 34	0 23
31	T	5 24	6 36	1 7	5 26	6 34	1 13	5 28	6 32	1 25

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.
New M'n	5 11 4 ev.	10 52 ev.	10 40 ev.	9 58 ev.
1st Quart	13 6 58 mo.	6 46 mo	6 34 mo	5 52 mo.
Full M'n	20 0 34 mo.	20 0 22 mo.	20 0 10 mo	19 11 28 ev.
3d Quart.	27 11 31 mo.	11 19 mo.	11 7 mo	10 25 mo.

AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1880.

Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

It is to be remembered that the *American Agriculturist* circulates over a vast territory, and it follows, from the great difference in the seasons, etc., that these hints must be of a general character. Good judgment must, therefore, be used in applying them to any particular section or locality. It is evident that no one rule as to planting, sowing, harvesting, etc., can apply everywhere.

Sowing Wheat.—When wheat follows oats, the oat stubble should be plowed as soon as the crop is removed from the field, otherwise the dry weather, that so frequently comes in early autumn, will make the soil dry and hard, and it then can only be worked with difficulty. Wheat requires a fine, mellow soil, and if any clods remain after the first harrowing, the work of pulverizing the soil should be continued until all clods are reduced to a fine state. The roller and the Disk harrow are both excellent implements in bringing the soil into a proper condition.

Drilling is by far the best method of sowing; it secures uniformity in depth, and saves seed by putting all the grains in a proper place for growth. Five or six pecks of grain is sufficient seed per acre when the drill is used. Of late some farmers are testing the value of cultivating wheat, and their results are almost uniformly in favor of the practice. In sowing, the alternate spouts of the grain drill are closed, and the seed sown in rows about 16 inches apart. It is not difficult to construct a cultivator that will work between these rows by means of which the soil may be kept loose and free from weeds. We wish to receive full reports from those who have been cultivating their wheat the past year.

Seed.—Much depends upon the variety of wheat sown. Of the several kinds now "in the field," the Clawson takes very high rank, and is the one found to be generally preferred in the wheat regions we have recently visited.

Early Sowing is best except when there is danger from the Hessian fly, when the late sowing is preferred, but owing to the poor growth made in autumn only an average crop may be expected from sowing late to escape the fly—it is a choice between two evils, the lesser of which is sowing the seed late.

Rye is not so valuable a crop as wheat; but it has the advantage over wheat of doing well on a poorer soil. It should be borne in mind that a soil that is rich enough to grow a good crop of rye can, by a dressing of 250 to 300 pounds of fertilizer, be made to produce a much more profitable crop of wheat. If the rye is grown for the straw, in special cases, the rye crop may be more valuable than wheat; but as a grain crop the wheat takes the front rank.

Fall Fodder.—White turnips may be sown this month. With the use of manure or artificial fertilizers, an oat stubble may be made to produce a crop of 600 to 800 bushels per acre. These roots make excellent feed for all kinds of stock, and will keep in good condition until January.

For Fall Pasture, rye, or millet, may be sown early this month, on rich and thoroughly prepared soil. If not wanted this fall, the rye will make a good crop for the spring soiling of the farm animals.

Winter Oats have succeeded in some parts of the South, but are not a safe crop for the North. The seed is sown next month, but the preparation for it is now made, and the more thorough the better.

Swamp Lands.—This month and the next are the best for cleaning up the wet, low lands. The thick growth of grass and weeds is first to be cut and burned, when the soil will be ready to break up with a plow. So soon as the soil has been made fine by thorough harrowing, it should be sown to grass seed. Frequently it will be necessary to run one or more

Drains before the soil is prepared for the seeding. During dry weather drains can be dug at much less expense than when the soil is full of water. In making a drain, it must be remembered that its value largely depends upon the thoroughness with which the work is done. A drain to be a paying investment must be a permanent improvement. It is better to make a single drain that will last than a larger number, with the same money, that are imperfect, and will be constant sources of trouble.

Muck.—This valuable material for the barn-yard, stable, and compost heap, can be dug with greatest ease and profit at this season. It may be drawn out into a heap near by, with a team and a dump scraper, where it can get dried out, and afterwards be drawn to the place where it is to be used.

Composts.—There are many waste matters about the farm, and they should be gathered into a heap and there rotted into a valuable fertilizer. Weeds of all kinds that do not contain ripe seeds, and refuse of crops, should go into the compost heap.

Fall Fallowing.—It is wise to plow as much as possible for spring sowing. It is a half-way fallowing, and in so far an advantage to the soil; it is of more benefit to heavy land than light, and the earlier it is done the better. Fall plowing greatly facilitates the farm operations in the spring.

Mangels and Beets.—The root crops need frequent cultivation through August, and as long as the foliage will allow it. Sugar-beets are best if earthed up until the roots are entirely below the surface. Mangels do not require this care in "hilling up."

Potatoes should be harvested so soon as they are ripe, otherwise the tubers may sprout, especially if the weather is wet; they are more apt to be affected with the rot if not removed from the soil as soon as they are mature. Burn the vines.

Cows will need some fresh fodder when the pastures become short and dry. Fodder corn is excellent for this, keeping up the flow of milk through the season. An abundance of cool, fresh water ought to be within the reach of the cows, and also shade from the hot sun of the summer noon-day.

Sheep.—The coupling season begins soon, and a good ram only should be used. If possible, secure a pure blood—a poor ram is poor economy. The

Lambs should be separated from the dams and given a good pasture by themselves. If early lambs are desired for the spring market, a Southdown cross is preferable for quality, though in size the Cotswolds are much larger than the Southdowns.

Swine.—By proper management two litters of

pigs may be obtained from the same sow in a year, and with considerable profit. It is frequently an advantage to have pigs come in August, as they can then be ready as small pork for the holidays. Above all, keep the pens neat and clean.

Horses.—Pasture alone will not be enough for horses at night that are kept at work through the day. A run in the pasture will be beneficial, but a feed of grain should be given before being turned out. Work horses plowing on hot, dry ground are subject to brittle hoofs; this may be remedied by keeping the hoofs soft by an occasional application of glycerine. The shoes should not be kept on too long, otherwise the hoof growth will not be natural.

Clover Seed.—Clover cut early for hay will be ready to cut again for seed this month. The sod may be turned for wheat, and will furnish a large amount of valuable quick-acting plant-food.

Gas Lime, when it can be obtained for the trouble of drawing it away, is worth all it costs. It should not be used fresh, but put in heaps ready for spreading on the land in the spring. In a few months the injurious gases escape, and it becomes a mixture of various compounds of Lime.

Poultry.—The value of pure bloods is now well established. This month is a good time to clear out the old mixed fowls and procure a few specimens of one of the best sorts; both the pleasure and profit of poultry raising will be increased by raising some one or more of the select breed.

Notes on Orchard and Garden Work.

What was said in this place last month, on the need of more frequent intercourse between cultivators is still timely. The season of Fairs is so near at hand that the matter should be thought about and discussed. Fairs are so numerous and communication so ready that one can, by a little forethought, attend several of these gatherings. Be sure to do all that is possible to make the local fair attractive, and do not refrain from exhibiting because you think some one else may show something better of the kind. Show the best you have, and if another does better, try and learn how he did it. If a premium is awarded you for any article, no matter if it is only 25c., be sure and take that money. One way to destroy interest in a fair is for the few who think that they can afford to do so, to treat the awards as if they were of no consequence. If the fair is well attended by fruit growers, or those engaged in gardening of any kind, try to get up a meeting of such persons for an hour or so, for discussion and interchange of experience. A beginning, however small, in this direction, may lead to excellent results hereafter. This is but one of several methods by which even a small fair may be made an occasion of real interest.

Orchard and Nursery.

It is now the time of year when returns are coming in for the work of the earlier portion of the season,—the early apples, pears, etc., are ready for market. If one with fruit to sell could visit the city markets, he would learn by observation the importance of what seem to be trifles. It will not take long to learn that much depends upon a careful

Sorting of the Fruit.—At least three grades should be made, the "Extra," "No. 1," and a third sort, which in most cases, unless the fruit is very scarce, should not reach the market. Usually it does not pay to market the fruit as it comes from the tree—the greater the uniformity of the fruit all through the package the better it is for the producer.

Packages.—Very much depends upon the way the fruit is put up for the market—the size and shape of the packages, that they may be easily handled. The neatness of the package, with a plain label, goes far to secure the best prices at the market. Half-barrels, crates, and baskets, are the packages most used for early apples and pears and the last two for peaches. Whichever of these is used, the fruit should be packed in firmly to avoid the bruising that would otherwise follow from shaking.

Peaches require judgment in picking: the longer the time before they will reach the consumer the harder they should be. A single over-ripe peach in a crate spoils the looks of the whole package, and though the fruit in the main may be first-class or "extra," it can only pass for poor. The poor specimens are as the weak links in the chain by which the value of the whole is estimated.

Pickers.—Persons who care nothing for the trees, and so tear and break the limbs that they look as if a hail storm had visited the region, are not fit to have in an orchard. It must be remembered that there are seasons to follow, and the trees should be treated with care accordingly; only the careful pickers are profitable pickers.

Early Pears require more care than other fruits, as they ripen and decay so quickly. They must be picked before they become at all mellow, and marketed at once. If for home use, they are best picked early and ripened in the house.

Budding.—So soon as the bark of the stock will raise easily, and the buds are mature, the budding may be done. A sharp knife with a thin blade, and the inner bark of the Basswood in thin strips for tying in the buds, are needed. Success depends upon having the bud fit closely to the stock, and this must be kept in mind in tying them with the bast.

How to Bud.—In the Notes for August, 1877, we gave full directions, with illustrations, of the process, which will guide any intelligent person in the work. As we can not repeat every year, this number can be had, by those desiring it, for 15 cents.

Seedlings, of evergreens especially, require shade during the hot weather. Leafy branches of trees will serve this purpose if nothing else is at hand.

Young Trees require a mulch at this time to protect them from drying out at the roots.

Insects.—The "worms" of the Codling Moth are now in the "windfall" apples, and they should be fed to the hogs. The bands upon the trunks of the trees, as mentioned last month, will need to be looked to once a week and the "worms" killed. For treatment of Borers, see Notes for July.

The Fruit Garden.

Blackberries for the market should be picked before they are fully ripe—for home use they may remain on the canes until dead ripe. The new shoots for next year's fruit having been selected, the rest of the suckers should be treated as weeds, and the old ones cleared away so soon as the fruit is off. The young canes should be stopped by pinching at the hight of 6 feet, or even lower, that branched and stocky plants may be secured. Three or four such canes are enough for each stool.

Raspberries will need much the same treatment as the blackberries. Pinch back young canes to 4 feet or less; clear out old ones after bearing.

Grape Vines.—If mildew makes its appearance, the vines should receive a thorough dusting of Sulphur at frequent intervals until it is subdued. A still morning is the best time to do the dusting, using a bellows to throw the sulphur on to the under-side of the leaves. The presence of mildew is known by the white spots which it makes on the leaves, and afterwards, if not attended to, upon the clusters of fruit. Pinch back *laterals*, as directed in previous Notes.

Insects of whatever injurious kinds, will have to be fought. The large caterpillars and beetles on grape vines are best destroyed by hand-picking.

Strawberries.—Early formed plants from runners rooted in pots, may be expected to bear a good crop next year. Ordinary plants set in the ordinary way this fall may give a few berries next season, but not a full crop until the year following. The old beds should be well manured and kept clean of weeds.

Kitchen and Market Garden.

Weed killing will still be required, though most of the crops are beyond injury from them. A weed that goes to seed now—and they do very rapidly—means a full supply of young plants to stock the ground for another season. If the crop is removed from any portion of the garden, an occasional run of the cultivator over it will keep the weeds down, and at the same time improve the soil. It is better to sow such places with some late crop, such as

Spinach, Late Turnips.—Spinach to be wintered should not be sown until next month. "Yellow Stone" and "Aberdeen" are good turnips to sow now; the Strap-leaf will do if sown next month.

Beans.—It is not well to hoe beans when the vines are wet, as it is said to make them rust. For pickling or salting, the "Refugee" is best. Sow "Early Valentine" for a late crop of snaps. The stems of Limas need pinching off when at the top of the poles.

Beets need frequent hoeing and thinning. Use the young plants for greens.

Cabbage and Cauliflower.—Set for late use. The "worms" are best removed by using hot water (180°), sprinkled over the plants through a fine rose.

Carrots to do well require clean culture. When too large to hoe, pull the weeds that show themselves.

Celery should be set out at once, and in well manured moist soil. Hoe earlier plantings frequently.

Corn for late crop should have the soil kept open, mellow, and free from weeds. So soon as the ears are picked the stalks may be cut and fed to the cows or other stock, or cured for winter.

Cucumbers.—The soil should be cultivated so long as the vines will allow of it, after which hand-pull the weeds. Gather the fruit for pickles when of the size of the fore-finger—some prefer them smaller. Always cut with the stem left on.

Egg Plants.—Keep clean of weeds, and place straw under the fruit to keep them from the ground.

Melons.—The late sets will not mature; therefore pick them off, that all the nourishment may go to the earlier ones. A mulch of straw just before the vines begin to run will keep the fruit from the ground. A more uniform ripening is secured by occasionally turning the fruit when near maturity.

Onions.—Harvest the crop so soon as the tops die, and after being well dried, store in an airy place.

Potatoes should be dug so soon as ripe, which is known by the dying down of the vines. Clean the ground of all weeds.

Seeds.—In a small garden where there are several varieties of one vegetable, it is almost impossible to keep the kinds distinct, and as a general thing it is better to buy seeds of those who make a business of growing them. If any are to be saved, let it be from the best and earliest.

Squashes.—Pull out the large weeds after hoeing is over; and watch for any injurious insects.

Sweet Potatoes.—Vines should not root at the joints, as small potatoes form there at the expense of the large ones. Move the vines when hoeing.

Tomatoes.—A cheap frame of some sort should be provided to support the vine and keep the fruit from the ground; if nothing better is provided, use brush or straw for the fruit to rest upon.

Flower Garden and Lawn.

In a dry time it is well not to commence watering unless it can be done thoroughly and copiously; a mere sprinkling of the foliage does but little good. Where a general watering is not practicable, those plants that seem to suffer most should have the surface earth drawn away, the ground well soaked, and then the dry earth returned. The neatness of the beds will depend largely upon careful trimming and pinching, especially if designs are attempted in foliage plants. The lawn will need the weekly visit of the lawn mower.

Dahlias, Tuberoses, Gladioluses, etc., will need stakes for the support of their flower stalks.

Large Weeds in the lawn are best removed root and all by using an old chisel fixed to a handle.

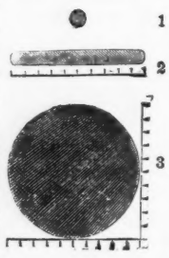
Walks and Drives need to be raked occasionally, and the edges trimmed to look neat and clean.

Greenhouse and Window Plants.

Whatever repairs are needed about the greenhouse should be made before the time for taking in the plants. The heating apparatus should be looked to that it may be all right when needed. The wood-work of the houses should be thoroughly washed; and a supply of pots, labels, potting material, etc., provided before the busy days of autumn are at hand. The propagation of many plants for winter may be going on, that a good stock may be in readiness for decoration of the house.

The Compound Microscope—Answers to Questions.

In several hundred letters recently received are numerous queries which are mainly answered by the following: The "magnifying power" of a Simple or Compound Microscope is usually stated in *diameters*, that is, the increased size shown in *one* direction. For example, a small dot (fig. 1), seen in an instrument magnifying only 10 diameters, is stretched out one way as seen in fig. 2. But it is magnified in every other direction just as much, as shown in fig. 3. That is, its area or surface would be seen covering about 78 times as much space, while a small object seen through a microscope magnifying 100 diameters, would cover a space over 7,800 times as great as the object itself. This of course brings out many thousands of points, lines, and parts, too small to be seen by the unaided eye. (The *American Agriculturist* Compound Microscope, by the use of single and double lenses and the draw-tube, can be arranged to magnify all the way from 25 diameters up to 150 or more, and works very clearly for 125 diameters, which is equivalent to magnifying the area or surface over **12,000 times!**



The power and definition of this instrument is sufficient for all ordinary uses of amateurs and professional men. Those desiring higher power for special scientific investigation, can be supplied with achromatic "French Triplet" lenses, having screws to fit this instrument, and of almost any power desired, up to 300 or 400 diameters or more, at a cost of $3 to $10, according to the special power desired.

This Microscope has a concave mirror, on a movable arm, allowing it to be turned *under* the stage to concentrate light under or through transparent objects; or at one side *above* to throw light down upon opaque objects.

The *Camera Lucida.*—The long-known Camera *Obscura* is an arrangement for throwing an exact image of an object upon a screen in a *dark* room (obscura). The Camera *Lucida* (light) is an attachment to the eye-piece of the Microscope, which throws the magnified image of an object upon a partially lighted screen or paper, so that one can see it well enough to run a pencil over it, and thus make a picture of the magnified object for preservation. This requires only skill enough to pass a pencil over the picture as it shows on the paper. Until the production of this new Microscope, any Camera Lucida attachment for the Microscopes in use, alone cost more than this entire instrument, camera included.

The regular retail price of the *American Agriculturist* Compound Microscope is $15, which is less than half the price of any equally powerful and convenient Microscope previously offered in this country. But it was devised wholly in the interest of the readers of this Journal, and it is supplied to any actual subscriber for $10—or given as a Premium for *Ten* annual subscriptions at the regular rate of $1.50 each.

It has received the highest commendations of many scientific men, as well as many hundreds of our lay readers. (Some of them are given in our pages for June, last year. Prof. Spencer F. Baird, Secretary of the Smithsonian Institution, at Washington, uses one, and has sent many persons to us to obtain them, though by his official position he is precluded from giving a written recommendation of it, as he would otherwise gladly do.)

Other questions received are all answered, we believe, in the illustrated description which is sent to applicants.

Soil Exhaustion.—Dr. J. B. Lawes gives some important notes on the exhaustion of soil as deduced from his famous field experiments. He writes: "It is now exactly forty years since we began to exhaust a portion of one of my fields by continuous unmanured wheat crops; it may therefore be interesting to show the evidence we are in a position to bring forward upon the subject of exhaustion as regards the soil at Rothamsted.... The annual decline due to this cause may amount from one-quarter to one-third of a bushel of wheat per acre per annum. If we take the smaller quantity, and add to it the ordinary proportion of straw, the result would be equivalent to about forty pounds of produce.... The amount of matter annually taken from the soil by this forty pounds of produce, including the nitrogen it contains, would be between two and three pounds. The evidence derived from other experiments in the same field, proves that the decline in produce is due to an absence of nitrogen, as also that the minerals are in excess, but the actual amount of nitrogen that this forty pounds of produce would have contained, would be less than one-half pound in weight." This seems like a small matter upon an acre of land, but it is to be observed that in forty years this annual decline amounts to ten bushels of grain. Dr. Lawes concludes that "the gradual decline in the produce is due to the diminishing amount of nitrogen in the soil. It is also evident that the source from which the forty crops obtained their supply must have been the stores of nitrogen already existing in the soil when the experiment commenced; further, it seems most probable that the yield of future crops will depend upon the amount of nitrogen liberated each year from the soil." It is through such long extended and carefully conducted experiments as these of Dr. Lawes that we are to learn the nature of soils, their exhaustion, etc.

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containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

Reliable Business Men, those who have both the *ability* and the *intention* to do what they promise, are the *only* ones invited to use the business-pages of this journal, and those in charge of that department are under positive instructions to admit no others at any price; and they try to live up to it, and generally do, though once in a while they may make a mistake—to err is human—but *this* seldom occurs. We could make a fortune in a single year, and supply the paper at lower rates, if the advertising pages were thrown open to those who gladly pay high prices, as they can afford to, because they give little for much. But we mean our advertising pages shall be a valuable source of *trustworthy information* to our readers.—When ordering from, or corresponding with any of our advertisers, or sending for catalogues, etc., it is well to state that you are a reader of this Journal. They will know what we expect, and what you expect of them as to prompt and fair treatment.

Attending the Fair.—It will soon be "fair time," and already preparations should be in progress for both attending and making exhibits at one or more of them. There are many reasons why the farmer and family should attend the fairs. It is a source of both instruction and amusement to old and young. Many a lad has had his interest kindled for improved machinery, live stock, fruits, etc., by attending the fair.

What is the Use?—If "J. B. H," of New Holland, Ohio, had signed his full name, he might long ago have had an answer by postal card—telling him that there were probably no Cashmere Goats in the country.—There was nothing in the question that "J. B. H." need be ashamed of; even were he candidate for President, no capital could be made against him. What is the use of writing letters and omitting to sign them? The general fate of such is the waste-paper basket. If a letter is not of sufficient importance for the writer to sign it, it is of no sort of importance to us, and three cents may be saved if the writer puts it into his own waste-basket.

Drink for Hot Weather.—In England, and largely elsewhere, a drink is made by mixing oatmeal with water, three or four ounces to a gallon. It is found to satisfy the thirst as well, if not better, than pure water. The oatmeal is a nutritious food, and when taken with the water, while it is pleasant to the taste, the mixture makes a "victuals and drink" that is commendable. We like it, and have taken many a drink of it in the hayfield, or while hoeing the corn, etc. The Mexicans use upon long journeys, and herdsmen and the poorer laborers live upon, a food called *Pinole* (pronounced pin-o-lee, with the accent upon the o). Corn is parched, or roasted (not popped) and ground into meal, sufficient sugar is added to pleasantly sweeten it, and cinnamon or other spice is often used to give a pleasant flavor. In this the grain is thoroughly cooked, and only needs to be mixed with water, and one has a hearty meal ready at once. It is mixed with water sufficient to form a mush, or it may be used with a larger quantity of water, to form a gruel, which we know to be a most refreshing drink.

Sorrel.—"P. R. H.," Summit Co., O., asks how to exterminate Sorrel. He says that some in his vicinity say that it is due to "sourness in the atmosphere." We have often heard it ascribed to a sour soil, but not before to a "sour atmosphere." The best way to get rid of sorrel is to improve the soil, and encourage the growth of grass to crowd it out. The idea that Sorrel, or any other plant, can take up acidity from the soil is erroneous. Sorrel and Sugar-beet, grown side by side, will be sour in one case, and sweet in the other. Both the acid and sugar are formed in the plant, not taken up by it.

Great Increase of Immigration.—A circular issued by the Bureau of Statistics at Washington, shows that the number of immigrants arrived in New York for the year ending May 31st, 1879, was 92,351. The number for the year ending May 31st, 1880—236,017.

Blossoms, but does not Bear.—Every now and then some one asks what can be done with a grape-vine that flowers freely, but will not bear a cluster. Either graft a good kind upon the root, or set out another to take its place. Some vines are imperfect in their flowers, and nothing will make such produce fruit.

The American Association for the Advancement of Science.—"What's in a name?" Had the poet asked with reference to this one, the correct answer would have been—four dozen letters. The Society must have more than usual vitality, as it has carried that name about the country for over 28 years, and will hold its 29th meeting at Boston, on the 25th of the present month. The annual gatherings of this body of scientific workers are most pleasant occasions. Its members number nearly 1,000, and as those who attend are usually accompanied by their wives and daughters, the meetings are quite as social as scientific. Workers in every department of science get together once a year to tell what they have been doing. There is such a number that they divide up into several sections, so if one finds the doings in one section not to his taste, he can go to another. As the Association is hospitable to all listeners, our friends in Boston and vicinity, even if not members, will find the sessions, as a general thing, instructive and enjoyable. Boston is a capital place for such a gathering; its people are used to entertaining crowds, and know how to do it. F. W. Putnam, Salem, Mass., is Permanent Secretary, who will give all needed information to those intending to attend this interesting and instructive meeting.

The Coming Fairs.—Our Fair-List is made up largely from the announcements sent us by officers of the Societies holding them. A large number of premium lists and other announcements of Fairs have already been received and placed on file.—To the Secretaries of all others we would say, please send the *date* and *place at once.* The *State*, County, and Town, as well as the date, should be clearly and accurately given. Also the Secretary's P. O. address.

Muck: Dig it Now.—The dry weather which usually comes in late summer makes this a good time to get out a supply of muck. This valuable absorbent for liquid manures, when of the best quality, contains a large quantity of nitrogen, which, when decomposed in the compost heap, makes of itself a large amount of valuable plant food. As a source of manure, it is of importance.

"What is This?" is a question that is, of course, a familiar one to us. For example, it comes to our table together with an object which may be described in brief in something like this wise. It is about two and a half inches long, and half an inch in diameter, chestnut brown in color, round, tapering at both ends; from one end, the head, proceeds a long, curved proboscis, like a jug handle, while the opposite end is divided into a number of rings. It is alive, because it moves its ringed extremity when touched; but it is entirely helpless, for it goes without taking any food. This is the pupa, or chrysalis, of the "Tomato Worm" that is so destructive to the foliage of the tomato and several other plants. When the mature insect comes out of the pupa case it will be a large and handsome moth, of an ashen-gray color, with bright yellow spots on its body, and a very long tongue, which, when not in use, is coiled up under its head.

"Pig in the Clover."—A farm is not complete without pigs; and pigs are at their best in a field in which they have green food to pick, and a field is often the most profitable when it is growing a good crop of tender clover. The green food the pigs get acts as a corrective to their feed at the trough. Pigs that are getting clover or grass can be fed corn without the injury it would do them were they confined closely in pens and deprived of green food. When the grass is short, a feed of fodder corn is important, and especially so for sows that are rearing young pigs, as such green food increases the milk and keeps both sow and pigs in a healthy condition.

Some Things this Number Contains.

The Hints for the Work on the Farm and in the Orchard and Garden, pages 294, 295, will aid all cultivators.

The Third Prize Essay on KEEPING ONE COW is of special value to our Southern readers, showing how much a half acre may be made to yield; pages 310-311.

The House Plan will meet the wants of many who live where they can get stone cheaply; page 304.

The Talk about "Patent Medicines," and the Quackery connected with them will interest many, and should be read by all; pages 300-301.

The Editorial Correspondence, pages 301, 302, 303, makes a valuable collection of suggestive items of information.

The Sheep Rot, and many Hints and Helps for Farmers, etc., pages 308 to 312.

Flowers, Plants, Insects, etc., pages 313-314-315.

The Famous Jersey Cow, "*Eurotas*," page 305, will interest the hundreds of thousands who have cows.

The Household contains a variety of information, including Faith Rochester's Notes; pages 316-317.

The Boys and Girls will read pages 318-320.

The Basket is large; pages 296 to 300, and 325 to 329.

Crop Prospects.—*Wheat:* Owing to the open winter much of the wheat was seriously injured, but the weather of early spring was in its favor. A large area of the winter-killed wheat in the Northwest was re-sown to spring wheat, which did very well. The increased acreage of wheat and its uniform good condition seems to indicate a crop exceeding the 440,000,000 bushels of last year. *Rye:* The acreage and yield are both larger. The poorer soils of New England, that do not give good crops of wheat, have produced a large yield of rye. *Barley:* The yield is reported good everywhere, and the crop may be expected to be in the neighborhood of 50,000,000 bushels. *Oats:* The yield will be heavy, and the acreage, especially in the Southern States, is far greater than in previous years. An aggregate crop of 450,000,000 may be expected. *Hay* is very light, owing to the dry weather that has so generally prevailed, and the price will be high. A substitute in fodder corn or Hungarian grass must help out in the winter feeding of stock. *Potatoes* are a fine crop; though the Beetles have been abundant, they are now so easily handled that potatoes are again one of the sure crops. *Fruits:* This is the bearing year for apples, and a good supply may be expected. Pears are a light crop; and peaches are not more than an average. Grapes are excellent.

Excelsior for Packing Fruit.—"Excelsior" is the trade name given to fine wood shavings, made originally, we believe for the use of upholsterers as a substitute for hair and other expensive materials, in stuffing mattresses, sofas, etc. It is elastic and perfectly cleanly, and if made of the proper woods free from odor. Such a material has naturally been found adapted to other than its original uses, and is now largely used for packing various small wares. The latest application we have noticed is in packing peaches. Peaches for a near market need no packing, but the growers in Georgia seem to think it necessary to use something with their fruit and have hit upon Excelsior. Whether it is necessary or not, the fruit packed in shallow crates, with a layer of Excelsior above and below them, reaches the market in as perfect condition as those from much nearer points.

Coal Tar for Insects.—"T. D. P.," Madison, Wis., initials that many will recognize as those of a well known pomologist, writes that he finds water impregnated with gas-tar a simple and sure remedy for the destruction of bugs and worms on all kinds of plants. He says "it should not be used too strong," and this leads us to ask him how we are to fix upon the proper strength.

Gasoline, Naphtha, Benzine, are names for very similar products obtained in refining petroleum. When crude petroleum is put into a still, and the heat gradually raised, that liquid which distils off at the temperature of 170° is called Gasoline; that which distils at 280° is Naphtha. The liquid which distils at 300° is Benzine, while properly prepared Kerosene distils only at 400°. Gasoline, Naphtha, and Benzine are very similar liquids, differing in their specific gravity and boiling points. There is a still more volatile liquid than Gasoline, obtained in small quantities, viz.: Rhigoline, which boils at 100° or less. As there is but a limited demand for these products in the arts they accumulate on the refiners' hands, and are sold at very low prices. There is a great temptation to unscrupulous retailers to buy these cheap products and mix them with kerosene; though the law has largely checked this adulteration, it is still more or less done in defiance of the law, and kerosene bought of unknown persons should always be tested before risking its use. These products, Gasoline, Naphtha, and Benzine, have high illuminating and heating powers, and being also very cheap, it is natural that many attempts should be made to utilize them for lighting and as fuel—and various lamps and gas generators, as well as stoves, have been invented for the purpose. We have examined a great many of these, but have not only not seen one that we could commend, but we have refused to advertise them, as we regard all that we have examined as unsafe and their use attended with danger. The inventors show very clearly that no explosion can take place in their lamps or other apparatus, as they have guarded against this at every point. Still there remains the fact that their use requires the storing and handling of liquids that are unsafe in a high degree, and should never be trusted, as such things will be, in the hands of ordinary "help." The following is cut from the "N. Y. Evening Post" for May 26th last:—"Mrs. Frances Jones, of Piqua, O., had a barrel of gasoline in her cellar to be used as fuel for a gas stove. Yesterday morning the barrel seemed to be leaking, and F. W. Amendt, a neighboring grocer, and two boys named Perdue, about sixteen and twelve years old, respectively, went into the cellar to see what was the matter. One of them struck a light, and instantly an explosion occurred, which shattered the building from cellar to roof, and threw a mass of brick and shingles fifty feet in the air. The two Perdue boys, Mr. Amendt, and a lady in the house, received fatal injuries."—Such casualties occur every now and then, and so long as these articles are in use with the present means for keeping and handling them, they will continue to occur. The fact that such "accidents" are possible, seems to us sufficient to justify our position in relation to the articles and all contrivances for their use.

Weights and Measures.—R. Forest, Ont., Canada, thinking "we have much need of a change in our weights and measures, the present system being too complicated," sends us the system he proposes, and asks us to publish it, and invites those who differ from his views to discuss the matter with him in our columns. We must decline both to publish the system, and to give room for its discussion. When one takes up a subject of this kind, he should first learn what others have done before he proposes a method of his own. The subject has been thoroughly investigated and discussed, and systems vastly preferable to that of Mr. F. have been proposed. The trouble is not in the lack of better systems, but in the reluctance of people to make a change.

Sending Fruits.—A large share of the specimens of fruits sent each season for our inspection, are perfectly useless when they reach us. Fruit sent by mail in a paper box, if it is not thrown out by the way, is so badly bruised when it arrives as to be past recognition. Fruit by mail should be in a wooden or tin box, and so closed that it can be opened for inspection; nails, tacks, sealing wax or gum, subject the parcel to letter postage. Do not use a cigar or perfume box, or any other that will give the fruit an odor or flavor; do not use cotton for packing any soft fruits. In sending by express, pay charges in advance—we have done paying such.

Fish Culture, it has been supposed for years, would do for an amusement but not as a business except in a few rare cases. Very great progress has been made in the artificial growth of fish, largely through the exertions of the United States Fish Commission, which has, among other things, distributed, within the last year, a large number of the European Carp. We should be pleased to hear from some of those persons who have been most successful in the growth of this remarkable fish. Perhaps the California people can make as good a report as any—at least we infer it from the notes in the Pacific press.

How Large a Grape Vine can be moved with safety? asks "J. M. W." If the question refers to the safety of the vine, if well cut back, a vine as large around as one's arm may be moved and live, but it will be a very unprofitable job. If the writer would ask how large a one may be moved with profit, that will depend upon what kind of treatment it has had, and its present condition. As a general thing it rarely will pay to move an old vine. A new one is obtained so easily, will grow so rapidly, and in a few years be so much better than an old vine, that has been moved, that it is better to start anew.

Questions about Grafting.—"W." asks how large the cions used in grafting should be. The shoots of the previous season's growth are used, and these vary in size with the variety and the vigor of the tree from which they are cut. The average is about the size of a lead pencil, or somewhat smaller. He asks if more than two cions can be inserted, and how if but one should grow? In what is known as crown grafting, more than two can be put in, but it is rarely done. If but one of the cions should grow, remove the dead one. One, in a majority of cases, is enough, and where two grow it is often one too many.

Interesting Figures.

Many unmathematical persons "hate figures," and hastily skip over any article or item that presents any array of them. But, very often, a few numbers stand for and represent great and important facts in the commercial and industrial prosperity of our country, and can but be of great interest to every one. The very condensed tables at the head of our Market Reports in every paper, give at one view the summary of an immense number of transactions in Breadstuffs. For example, this month we find the receipt, during 24 days, at the port of New York alone, of **14,867,000** (nearly *fifteen Million*) bushels of grain, reckoning each barrel of flour as five bushels of wheat, or 3,195,000 bushels more than during the same period last year.

But the SALES have been on a still greater scale. The summary of 24 days transactions show sales to the enormous amount of **36,969,000** bushels—a million and a half bushels for every day!

The Exports. The first line of table **4,** shows that during the first half of this year, including eight business days in July, there have gone abroad from the New York port alone, an equivalent of no less than *Sixty-four Million* Bushels of grain. From Jan. 1, to July 9, 1880, the total exports from New York alone ran up to nearly a round **$200,000,000** in value ($199,704,348) and for the year ending July 1, 1880, the exports (from New York alone), reached **$400,798,000**!—The exports for June amounted to $43,084,568—the largest amount ever sent abroad in the history of the country, we believe, during one month. All the above figures will be greatly swelled when we get returns from Philadelphia, Baltimore, Boston, New Orleans, Charleston, San Francisco, and other shipping ports.

To help the conception, suppose the above 64,000,000 bushels of grain exported from New York this year up to July 9, had been brought here on wagons, 40 bushels to the two-horse load. Three million two hundred horses would have been required, and one million six hundred thousand drivers. These wagons arranged in a line, allowing 50 feet to each, for wagon, team, and headway, the line would extend **15,151** miles, or make up nearly five lines of teams all the way from the Atlantic to the Pacific Ocean.—Put 250 bushels of grain in each railway car, and allow only 30 feet to a car. To bring this 64 million bushels of grain would require a continuous freight train of 1,455 miles, allowing nothing for engines. This would closely cover a track from New York to Omaha, or about halfway across the Continent! Note that we only speak of exports of our surplus, and from New York alone, during six months. *This is allowing for only about* ONE *bushel out of every* THIRTY *bushels of corn and wheat grown in this country during* 1879.

A FEW COMPARISONS.

Taking the Census Report of 1860, and comparing it with the estimates for the year just ended (July), we have the following figures, showing the wonderful expansion during the short period of 20 years, in our country:

	1860.	1880.
Corn produced, bushels	838,792,740	1,450,000,000
Wheat produced, bushels	173,104,924	440,000,000
Wool produced, pounds	60,264,918	282,500,000
Cotton produced, bales	4,823,770	5,675,000
Hogs packed, number	2,350,822	6,950,451
Iron produced, tons	919,770	3,070,875
Petroleum produced, barrels	500,000	19,741,661
Gold and Silver produced	$46,150,000	$79,711,990
Wheat exported, bushels	4,155,153	175,000,000
Corn exported, bushels	3,314,305	100,000,000
Butter exported, pounds	7,640,914	38,348,016
Cheese exported, pounds	15,515,799	141,654,474
Merchandise exported	$316,242,423	$835,000,000

Canned Meat.—During the hot weather many families experience considerable difficulty in keeping a supply of fresh meat. Without a refrigerator or an unusually cool cellar, meat will spoil in a very few hours. As a substitute, meat may now be bought in cans which may be opened at any time. The canned meat industry is now a very large one. It is estimated that fully three hundred thousand head of cattle are annually slaughtered in Chicago alone to supply the demand for canned meat.

The Preservation of Corn Fodder in Silos.

Soon after the plan of preserving corn fodder in tanks or *silos*, was published in France, the *American Agriculturist* gave a full account of the matter, and reproduced the engravings of the structures used by the inventor. These will be found in June 1875; and in April 1879, we gave an engraving of a machine invented in this country for the wholesale cutting of the fodder. Besides there have appeared from time to time other articles upon the subject. The matter for two or three years appeared to receive but little attention on the part of our farmers, but since accounts of some successful operations in this country have been published, there is a widespread interest, and there is no subject upon which we have, just at present, more inquiries than those relating to this. "The Ensilage of Maize," which is very nearly the French name for the process, seems to be very generally adopted in this country. *Silo*, is the French word for a "pit,"—*Ensilage* means the putting into pits. As the pits are built above ground, they have been called "tanks," and we have known the "tanking of corn fodder," used to express the operation. In view of the general desire for information we will endeavor to present next month, the substance of what has already been given, and such other matter as will allow those who may wish to do so to experiment understandingly. The preservation of green fodder in a like manner is by no means new; clover has long been similarly stored, and so have beet leaves in the sugar-beet fields of Europe; in this country brewers' grains, and partially ripe Broom Corn seed have also been thus preserved. It is applying to the preservation of corn fodder the same principle that nearly every house-keeper makes use of in preserving fruits. Every one knows that if green corn fodder, or other green vegetable matter be placed in a heap, fermentation will take place and decay soon follow; fermentation and decay require the oxygen of the air; exclude the air and these must cease. In Ensilage the corn fodder is put away with the air excluded and it keeps. Every detail of the operation has for its object the thorough exclusion of the atmosphere; the silos, or tanks are tight; the fodder cut small, that it may lay more compactly, and great pressure put upon the mass, all for the purpose of keeping out the air as completely as possible. That the fodder thus put up will keep in excellent condition is an established fact; it has been kept thus not only through the winter, but throughout a whole year.

Do we advise farmers to put away their corn fodder in this manner? Yes and no, and mostly no. Dairy farmers who carry on business with a sufficient capital, may incur the necessary outlay with a prospect of a fair profit on the investment, and the same may be said of those farmers who carry a large number of animals and can afford to make the investment. But with the average farmer, the case is different. No half-way work will do, the silos must be air tight or their contents will spoil; a large mass of corn fodder must be cut fine, and all at once, and to do this requires an outlay for machinery and power, which most farmers cannot command. There must be a large number of animals to consume the fodder profitably, when a silo is opened and the contents exposed a change takes place, and the consumption must of necessity be rapid or there will be a loss. We look upon the process as one that, so far as the average farmer is concerned, has yet to be Americanized and adapted to his circumstances and needs, and it is in this direction that we would encourage experiment. For large operations the present methods answer; we now wish to have a process by which one who keeps from two to six cows can prepare his silos, or preserving receptacles, with but a moderate outlay for materials and with ordinary labor; and the process needs to be otherwise so modified that the cost of putting away his fodder by this method will not more than offset its advantages. That this may be accomplished is our sincere hope. But at present it will be a great step if the discussion of the matter leads farmers in general to make better use the means they have. But a small share of the labor required by Ensilage, applied to saving the fodder they already have, would result in great gain. Leaving the matter of fodder corn out of the case, the matter of corn fodder deserves far more consideration than many give it; in the cutting up of the corn at the proper time and the care of the stover after husking, there is abundant room for improvement.

Yellows in the Peach.—There is no remedy for the destructive disease known as "Yellows" in the peach tree. When a tree is once attacked it should be dug up and burned root and branch, otherwise the trouble will spread to other trees and in a short time the whole orchard is ruined.

Entomologist for New York.—The State of New York has at length a State Entomologist, Governor Cornell having recently given the appointment to Doctor Lintner of Albany. There was a movement on the part of some of the friends of Prof. C. V. Riley, now Chief of the U. S. Entomological Commission, to secure him as the New York Entomologist. Learning of this, Prof. R. wrote to Governor Cornell, declining to be considered as a candidate, and strongly urging the appointment of the present incumbent, Doctor Lintner. We are glad that this, which may be made one of the most important scientific positions in the country, is thus secured to a competent naturalist, and kept out of the hands of semi-scientific pretenders.

The Farmer of the Future.—Prof. Wrightson, in his inaugural lecture before the students of the Wilts and Hants Agricultural College, at Downton, near Salisbury (England) said, among other things, that: "The farmer of the future must then be a man of resource; he must be ready to adapt himself to new circumstances and to adopt new crops when he finds he is undersold. He must look upon the soil and air as his agents for the production of animal and vegetable forms, the precise type of which must depend upon the laws of supply and demand. If an ironmonger finds that he has a strong competitor in the sale of locks, he turns his attention to lamps or to something else, and so must the farmer."

Sundry Humbugs.

In these days of summer showers and storms, accompanied by lightning and thunder, there cometh the Lightning-Rod Man. Other humbugs come and go; other frauds become known and cease to be profitable, but the Lightning-rod swindle is perennial. People are most easily humbugged in matters about which they know least; there is scarcely any thing—if we may call it a thing—of which there is so little accurate popular knowledge, as electricity. It is true that to the best informed there is much about electricity that is obscure, but its important facts and laws may be easily understood, and it is a great pity that they are not generally known. A lack of this knowledge in the community allows various electrical humbugs to succeed, from the ridiculous little so-called Batteries we recently exposed, up to the ubiquitous lightning-rod man.

THE LIGHTNING-ROD SWINDLE

has two principal features. The lack of a knowledge of a few simple facts in electricity, allows the so-called agent to make people believe that safety lies only in using his particular style of rod—usually some outlandish "doubled and twisted" much insulated and variously bepointed affair that makes a house look somewhat like a gigantic hatchel, if one is so unfortunate as to allow the thing to be put up. The other feature is, that it is usually made the medium of some form of down-right fraud. Fraud in the price, in the measurement, in getting the victim under some pretence to sign a bogus note; frauds which, we are sorry to say, are by no means confined to lightning-rod men, but very often practised by them. These fellows are masters of their art; their

KNOWLEDGE OF HUMAN NATURE

is so acute, their powers of illustration so great, and their glibness of tongue so remarkable, that one can not help wishing that their talents were exercised in some honest calling. With the majority of people, their only safety is in not listening to these chaps. If allowed to tell their story, they will convince most persons that they live in imminent danger; if the house has safely stood for 50 years without a lightning-rod, they can prove that the danger is all the greater; they can prove that a rod is needed then and there, and that the only rod that can possibly protect a house is the particular rod for which they are agents. If one's house is already rodded, however it may be with lightning, it is no protection from the lightning rodder. The chaps will show very plainly that a house with the style of lightning-rod it happens to have, is just a trifle more unsafe than if it had no rods at all, and of course safety is only to be secured by

TAKING DOWN THE OLD AND PUTTING UP THE NEW.

An allowance may be made for the old rod—which will straightway become a good one to be put up somewhere else! These chaps consider themselves in luck if on their first visit the man of the house is away, and they can operate upon the fears of the women. The various forms of swindling in measurement, etc., can as a general thing only be practised if the fellows are engaged to "rod the house," and our advice is to avoid these by having nothing to do with these travelling agents or their wares....But what shall those who fear danger from lightning do? it will be asked. We present some suggestions to meet the case in an article given elsewhere.... As the so-called medical batteries profess to deal with

LIGHTNING IN ANOTHER FORM,

we may say, as not foreign to the subject, that the battery business seems to be on the wane, only one new one having come before us since we last noticed them. Such a thing could not last long, it having no real value. Were the simplest laws of electricity generally known, these so-called batteries could deceive no one, as a glance at them would show them to be utterly worthless as generators of electricity.

THAT SECRET SERVICE SHOP

at Cincinnati seems to have found business dull and in order to get its name before the public instituted a murder—on paper. Indeed so quiet had it been for a few months, that we had nearly forgotten it, but the Texas papers and a letter from an indignant reader in Texas, brought them to mind again. The "Galveston Daily News" published with the neat and taking little title of "A Hellish Crime," a telegraphic dispatch from Dallas, giving the story that two women disguised as men had cut the throat of a farmer's wife and that the women aforesaid were shot dead by a stranger. The dispatch took pains to state that the information was derived from the special agent of the Cincinnati Secret Service Shop. Two days later the "News" announced that the story was "untrue in every allegation and particular." Our correspondents feels justly indignant that these "Cincinnati frauds," in order to secure notoriety, by making it appear that their detectives discovered this remarkable crime, should select Texas as the scene of the exploit, though he regards it as a shrewd advertising dodge. Knowing that the "Hellish Crime" will be widely copied, while its denial will not be, and as one who has the interests of the State at heart he sharply protests against the course of the Secret Servicables..... It has been before stated that the most annoying cases, we have to deal with are those in which we feel quite sure a scheme is a humbug, but have not the proofs to enable us to say so. As an illustration of this, and also as a sample of what is a frequent occurrence in our office, we give our experience with

"THE CHICHESTER RIFLE"

which was recently advertised very largely through the country. As there are a number of better class journals which consider the admission of an advertisement in the *American Agriculturist* as a proof of its being worthy of a place in their columns, extraordinary efforts are often put forth to get such advertisements into our columns. Perhaps on this account, the "Chichester Rifle Company" made an offer of a liberal cash contract for their advertisement in this paper, amounting to several hundreds of dollars (to run to $1,000 or more we believe) To get around our well known strict rules, the guarantee of $10,000 from a well known responsible party was offered us that the said Company would do by our readers "just what their advertisement promised." The gentlemen in charge of our business columns, as in duty bound, and according to custom, submitted the matter to the Editor. It seemed to be "all on the square," but to be certain, we sent for one of the "$4.50 rifles." On examination it proved to be a pretty good revolver, a 7-shooter, of $^{22}/_{100}$ calibre (ball about the size of small buckshot). But the barrel was extended to 16 inches, with good sights, and a wooden, removable shoulder piece was attached to the breech for holding it steady. Well, here was a small repeating rifle, that would not be very dear at $4.50 to any one wishing *such* a weapon for shooting at a target at short range, for killing rats, perhaps squirrels and other small game, at near distances. With such a "guarantee" should we not insert the advertisement? We first said yes, but on examining the large, page-wide advertisement, there was a lively and striking scene, well calculated to attract general attention. There was a combined prairie, mountain and forest panorama, with deer and other large animals scattered round, some alive and others shot down, and there were the hunters with their $4.50 rifles doing it, while in the foreground stood out in large figures "**$4.50.**"

The impression to be conveyed was that the $4.50 repeating rifles would be forwarded to hunt large animals, and shoot them at long distances, whereas a $^{22}/_{100}$ bullet would only seriously affect a deer when chancing to strike a very vital part, and then at not over 50 or 100 yards. It was argued to us that "the picture was only to attract attention, and that the text of the advertisement did not actually promise any such results." But it did not say anything to the contrary, and so we felt compelled to reject the advertisement, in the interest of our readers, however convenient the $1,000 proposed to us for a few insertions.—Afterwards it was again pressed upon us with the offer to strike out the prominent "$4.50" in the engraving, and to make any other change we desired. This seemed fair, but reserving a little time to decide, we despatched a private "detective" to the advertised headquarters of the Company, in a neighboring city, who was instructed to go as a country purchaser of the rifles. He found instead of a large Arms Manufactory, with extensive offices, etc., only two small 3d-story rooms and a few of the "rifles" in a case on a small counter. That of course ended further advertising negotiations, just as similar investigations often do. We were saved the mortification experienced by many respectable cotemporaries who adorned their pages with the big "Hunting Scene." They got their money; we suppose *their* readers got the wonderful $4 50 repeating rifles; though for some reasons, not *our* fault, complaints came to this office that money had been sent and no rifle received; or, instead, in some cases at least, a postal had been received stating: "Order placed on file, and will be shipped when reached, not later than—," having a date two weeks or more ahead.—Result: we don't know how many of these "rifles" went out, or "went off," but the Company has!—(We can hardly wonder that a business man in Walla-Walla, a twenty years' subscriber, who depends largely on buying in eastern cities, should, in renewing his subscription recently, write us thus: "I consider the *American Agriculturist* of great value to me on account of its care over its advertising columns; I prefer, as a rule, to pay a double price for any article I want, if it has even the qualified endorsement of being advertised in your Journal.")

SUPPRESSING QUACK DOCTORS.

A large number of men, and some women, hang out their signs as "Doctors" or "Physicians," who are utterly incompetent to give medical advice. The mass of people have no means of distinguishing between these quacks and the really competent physician who has thoroughly prepared himself by studying, and by working under and with a regular practitioner. So, those needing or thinking they need medical advice, are just as likely to call upon one of these quacks as upon a trustworthy physician, or rather more so, as the former usually puts out the boldest, most attractive "sign." The regular physicians are limited by the rules of the profession from displaying any thing more than their full name and a single word indicating their calling.—The last Legislature of New York State made an admirable move towards suppressing this dangerous nuisance, in the passage of a law requiring every one offering to practice physic, medicine, or surgery, to be at least 21 years old, and to register before Oct. 1, 1880, in the County Clerk's Office, his name, residence, and *authority for practising*, and receive a license. Persons coming from out of the State, to obtain a license, must exhibit a diploma of graduation from a reputable medical college.—Any person practising without such license will be guilty of a misdemeanor, and subject to punishment by fine or imprisonment. Half the fines go the informer, and half to the county treasury. Now let not only the medical profession, but all good citizens, see to it that the provisions of the law are rigidly enforced, and let every State that has not done so, immediately enact similar laws, and one large source of swindling, of suffering, of death even, will be dried up. Let the good work be followed by other laws in regard to patent medicines. The necessity of such laws will be seen in an article on page 300.

Harness Sores on Horses.—There are few things which cause more delay and trouble in farm work during these hot months of summer, than the galls and sores that come upon the shoulders and backs of work horses. A vast amount of hard work must be done, and the animals are strong and well enough to do it, provided there were not these painful sores that prevent their applying themselves to the labor. A horse with shoulder or back galls, or both, suffers pain when it is put into the harness. The direct cause of these sores is the friction to which the parts are subjected, combined with the excessive heat and great flow of sweat. Inflammation and chafing of the skin are produced much more readily in hot than in cold weather, because the conditions of greater friction are then present. The preventive is in reducing the friction to the least possible amount. In the first place, the harness must fit closely and smoothly to the form of the horse, that the weight of the load may be uniformly distributed over the surface beneath the harness. Secondly, the horse should be in a healthy state, that the muscles and skin may be of their normal toughness, and the sweating not unnaturally profuse. This involves the proper care and feeding of the horse. A poorly kept animal, or one not in good health, will become sore more readily than one in good health. When the sores are already formed, a speedy cure is the thing needed. Sponge carefully the afflicted parts, to remove all accumulations from sweat. Then bathe with a lotion of Alum and Tannin, with a little Laudanum added. All pressure upon the sore should be removed by a proper adjustment of the harness, and, if necessary, keep the horse from work until cured.

Subsoiling.—The advocates of deep plowing are not either so numerous or so strong in their views as they were a number of years ago. It is safe to say that one of the best methods of loosening up the subsoil—and this is the chief end to be accomplished in using a subsoil plow—is by deep-running clover roots. With an occasional crop of clover that will send its roots below the depth to which the subsoil plow goes, the soil in most cases will be made deep and mellow, and at the same time enriched for the crop to follow.

America at the Great Fishery Exhibition.—The Fishery Exhibition recently closed in Berlin (Germany) was made a great success, largely through the American contributions—a fact most freely acknowledged by the German officials, and abundantly testified by the numerous awards made to America and Americans. The exhibition made by the U. S. Commission of Fish and Fisheries, of which Prof. S. F. Baird is the Commissioner, was at the same time the chief American contribution and the principal feature of the Fair. This was in the personal charge of Prof. G. Brown Goode, the competent assistant of the Commission, whose efficiency is testified to by all accounts of the exhibition and by a special award of a silver medal by the Crown Prince. America is honored, in the person of Prof. Baird, by the Emperor's prize, a gold and silver fish basin of elaborate design; and the various individual American exhibitors received prizes, so that in all no less than sixty honors of various kinds come to the United States. As this is the first International Exhibition in which this country has occupied the leading place, it is well to remember that it is due to competent management. Our former displays, however valuable individually, have been without arrangement and without a proper head. In this case, Prof. Baird officially and Prof. Goode personally so systematized the American display that America at once took the leading position that belonged to her.

Granaries.—In many cases it is the most economical to thresh the grain as it is drawn from the field. The straw being mowed away in the barn in the space that would otherwise be taken by the sheaves before threshing. But as the grain is the chief portion of the crop, a place to store it must be provided in the barn, or other farm building. When the grain is threshed directly from the field it is green, and goes through a "sweating" process which, as heat is generated, may injure it, unless the bin is properly ventilated. To turn the grain in the bin by hand is hard work, and to obviate this, ventilating shafts should be made for the thorough circulation of air. These ventilators may be made of strips of half-inch

VENTILATOR FOR GRAIN BIN.

boards of convenient width, about four inches being usual, these are nailed together so as to form a triangular trough as shown in the engraving. The sides of the ventilator are bored full of small holes, and the ends coming through the sides of the bin are covered with a fine gauze. These ventilators are fitted into the bin, running from the front to the rear, with the open side downward. As the grain is poured in, a considerable vacant space is left below the ventilator, in which the moist and warm air can accumulate and then pass out the end of the ventilator. In this way, with two or three such ventilators in an average sized grain bin, even newly threshed buckwheat, the most "heating" of grains, may be stored without danger from overheating.

The Ox-Eye Daisy.—A Boston daily paper says: "The Ox-Eye Daisy has become a great pest in some sections of the country. Those who are troubled with this weed should bear in mind that it is propagated by seed and not by root, and that to rid themselves of it they have only to mow before the seed is ripe. It may take two or three seasons to rid a field of this innocent-looking flower."——This is an "innocent-looking" paragraph, but calculated to do mischief. The writer has somehow got hold of the idea that Ox-Eye Daisy is an annual, while it is really a perennial and *does* spread by the root very freely, and is also propagated by seeds. As with other perennial weeds, it should be cut while in flower to prevent it from ripening seeds. Mowing at this time will tend to weaken the root, but it is only through frequent and persistent cutting that it can be subdued.

News from Cloudland.—Not a spiritualistic revelation through a "mejium," but a very matter of fact communication from a scientific gentleman who is in the mountains of North Carolina on a tour of observation. Cloudland is on Roan Mountain and 6,367 feet above the sea level. On a day in the middle of July, with the thermometer in the nineties in the city, it is pleasant to read: "It is simply glorious. In ten days our extremes of heat have been 50° and 67°, air bracing, water crystal, views magnificent; for we can see land in seven different States. The show of *Rhododendron Catawbiense*, when the whole mountain was one great dome of flowers, was indescribably beautiful, while *Azalea calendulacea*, with its masses of flame, is worth coming here to see."

A Very Curious Growth.—Many articles are sent us which are simply curious or unusual, but which teach no especially instructive lesson. Of this kind is the specimen forwarded by W. J. Hester, McLean Co., Ill., which consists of two seedling Osage Orange plants, which are put together much as a blacksmith would arrange the parts of a pair of tongs. A root in its forward growth exercises a surprising amount of force, and we have seen various cases in which a soft and apparently yielding mass has moved a great weight for a very short distance. We have frequently seen cases in which roots having met with a potato, or with a beet or other root in their course, have pierced and gone through the obstacle, instead of going aroundit, as they would have done had it been a stone. All that can be said of the present case, of which we figure the interesting portion, is, that the point of one root pierced the other root when that was young and soft, and in their after-growth the two roots accommodated themselves to the situation.

Refrigerators.—"L. B." In the June number of the *American Agriculturist*, 1875, a Home Made Refrigerator is illustrated and described. An ice-box of this kind which will answer all the purposes of a more costly refrigerator for a small family, can be made with very little outlay of time and money. An ice-box can be made from two dry-goods, or other boxes, the one smaller and put within the other, and the space between filled with sawdust—provide a double lid, and a hole at the bottom for the escape of the drip from the melting ice.

Hellebore, Wet and Dry.—"J. M.," of Tompkins Co., N. Y., writes: that our notice on "Mixing White Hellebore with Water has nearly cost me the loss of my bushes. It has done me no good at all. I always rely on your advertisements, but this time have been sold."—When one is unfortunate the desire to blame some one is quite natural. "J. M." does not say so, but he probably had used dry Hellebore successfully, he saw our direction for the easier and more economical method of using it in the wet way, tried it, and failed. The use of water seemed to be the cause of the failure, and as we advised water, we are, in the view of "J. M.," the direct cause of his trouble. We are not disposed to blame "J. M.," as he judged from what he saw or knew. There are two sides to all such cases: this is our side. When an application or process is advised in these columns, without qualification or comment, it is an indication that it has been found, either in our own experience, or in that of friends on whom we can rely, a proper or useful one. Whenever a thing seems probably useful, but has not been tested by ourselves or others, whose verdict we can adopt, we are always careful to state the source of our information, so that our readers can judge how far to accept it. Now take the present case. When White Hellebore was first used to kill the Currant Worm, it was always applied as a dry powder. So far as we are aware, our correspondent "Connecticut" was the first to apply it mixed with water. We tried it ourselves, and found it in every way so much better than the dry powder, that we have, each year, at the proper season, advised the use of water. As the advice which "J. M." says "nearly cost me the loss of my bushes," was based upon a yearly experience of over ten years, and the fact that the powder is also used in the wet state by the largest currant growers in the country, it is just possible that the failure of "J. M." may be due to other causes. It is not easy to see why the powder, if active when dry, should

be any less so when wet, and it is much more likely that it had become deteriorated by long and improper keeping.

(*Basket Items continued on page* 325.)

Bee Notes for August.

BY L. C. ROOT.

As I anticipated, Basswood commenced blooming much earlier than usual. I first noticed bees at work on the flowers June 25th. At this date, July 5th, the bees are working very freely upon them. If the weather is favorable, we shall undoubtedly secure a good yield, as the tree is blooming more freely than usual. Those who have followed our directions, and have had boxes or surplus combs properly arranged, will be amply repaid.

Three of our best Italian colonies have been selected, from which we intend to extract, and I shall report the amount of honey we take from each during the season. They are in the large "New Quinby Hive," and are furnished with 32 frames of comb each, from which the honey is to be thrown with the Honey Extractor. June 25th, we took from No 1, 29 lbs.; No. 2, 32 lbs.; No. 3, 34 lbs.; July 5th, No. 1, 26½ lbs.; No. 2, 31 lbs.; No. 3, 35½ lbs. I propose to continue an accurate report of the products of these three hives, to show the readers of "Notes" that it pays to give bees care, and at the same time to illustrate the advantage of thoroughly comprehending whatever we undertake.

During the present month, take care not to add too many boxes, or to extract too freely, in localities where fall forage is scarce. I would advise every bee-keeper to leave a few hives without extracting all of the combs. In fact, where boxing is practical, it is well to arrange a few hives with extra combs to be filled and capped over. I have frequently known seasons in which the brood combs were so entirely filled with brood that all the honey was stored in boxes. Then the yield of honey closing abruptly, but little or no honey was stored for winter. At such times, it is most desirable to have heavy cards of sealed honey that may be furnished to such stocks. In a word, we should not be so eager to secure a great surplus as to run the risk of starving our bees, which is sure to be the result of improper management.

The following inquiry suggests thought enough for several articles for the beginner: "What is the cause of bees buzzing about their hives on pleasant days, as if they were going to swarm? Mine have been doing this since May 1st, and have not swarmed yet. About the middle of the day a number of them rush out of the hives and fly in circles with their heads towards the entrance, and finally enter without going off any great distance." ....*Answer.*—The occurrences similar to those spoken of by our correspondent will be noticed in every good stock of bees during the period mentioned. During each fair day the young bees leave the hive for their first flight. Our correspondent has described their appearance and actions at such times very accurately, but has made a mistake in supposing such to be any indication of swarming, only so far as frequent flights of this kind show that the stock is increasing in strength. The inexperienced are often led to suppose that bees are robbing at such times of busy flight. Our friend is evidently troubled because his bees do not swarm. Many bee-keepers watch the clusters of bees lying idle on the outside of their hives, and wonder that they get no swarms. To such, we would say, read up upon this subject, and see if there is not a much better way than to wait for swarms. If increase in numbers is desirable, practice has proved that it is much better to rear our queens in advance, use artificial comb-foundation, make a half dozen better and far more desirable swarms early in the season, and not wait for from one to three natural swarms, if so fortunate as to get any at all. In bee-keeping, as in all other pursuits, it pays well to investigate and keep informed as to the best methods of the day.

The "Rose Bug."

The present year is remarkable for the abundance of insects, and not the least among them, is the "Rose Bug," or more accurately, the Rose Beetle (*Macrodactylus subspinosus*), has been sent to us by several who found it destructive to a variety of plants. The insect in question is not a large one, the body being about one-third of an inch in length, and covered with an ashy down. The slender legs are of a pale red color, and the joints unusually long. Though called the Rose Beetle, it is fond of many other plants, especially those of the rose family, as the apple, plum, and cherry—in some cases, the foliage of the latter has been badly injured, and they have caused much annoyance to those who have had cherries to pick. It is by no means confined to plants of the Rose Family, as it is often one of the grape-grower's worst enemies. It is very fond of the flowers of the grape, and often destroys great quantities of clusters. The female enters the ground to deposit her eggs, which are hatched in about three weeks; the young grubs feeding upon the tender roots of plants. In late autumn, the grubs burrow deep to avoid frost, and spend the winter in an inactive state. As spring opens, they come up near the surface, change into the pupa state, from which they come out as the perfect beetle in the month of June. The beetle is active for about a month, when new eggs are laid, and the same cycle is repeated. The only time that a remedy can be applied, is during the mature state, when the beetle is above ground, and this consists in collecting and killing them by hand. In early morning, while they are sluggish, they may be brushed into a pan, in large numbers. In removing them from trees, a large sheet should be spread to catch them, as they are jarred from the tree. No poison has been used with success.

A Talk about Medicines which it will be Well for All to Read and Think About.

QUACK MEDICINES — PROPRIETARY MEDICINES — "SPECIFICS"—MEDICAL ADVERTISEMENTS.

The statisticians say that at least **50,000** Deaths are caused every year by intemperance in the use of spirituous liquors, to say nothing of the incident poverty and suffering of the victims themselves—of their wives, children, friends, and the community at large, and of the crimes resulting; or of the absolute annual waste of many hundred millions of hard-earned Dollars. None of this will we controvert; but we may surprise some readers by asserting the belief—*First*, that if alcoholic beverages slay 50,000 annually, the so-called patent, proprietary and specific medicines shorten the lives of quite as many people, cause an immense amount of ill health, and involve the worse than waste of hundreds of millions of dollars every year; and *Second*, that a great deal of the intemperance in drinking is brought about by medical quackery.—The reasons for the above statements will appear further on.

"SPECIFIC MEDICINES."

There is a wide spread, almost universal, popular belief that medicines are "specific," that is, that there is or may be found a particular medicine or medicines which will *cure* particular diseases; that one medicine, for example, will cure catarrh; that another will cure liver complaint; that another will cure consumption, and so on. The patent medicine makers act upon this popular error. They catalogue a larger or smaller list of diseases, give a great variety of *symptoms*—a list so comprehensive that almost any person, especially one with his nervous system, his stomach or his imagination slightly out of order, will find something that exactly hits his or her case, and then comes the positive announcement that such or such a medicine is a sure specific cure.

In the great medical libel suit against the *American Agriculturist*, terminating in its triumphant vindication Feb. 21, 1872, after running in the Courts for four years, several of the highest and best medical authorities were questioned in Court as to the number of medicines there were in the whole range of the *materia medica*, which could be called "specifics." None of these authorities were willing to name a positive specific, with a single exception: Dr. M. R. Vedder testified that he believed "sulphur, properly applied, would always cure the Itch, and may therefore be called a specific." Even to this it might be objected that the "itch" can hardly be called a disease, as it is the result of the biting of minute vermin, not unlike human lice, lice upon poultry and other animals and upon plants, the scab on sheep, etc. In the itch the vermin are too small to be seen with the eye unaided by the microscope. The cure depends upon poisoning or smothering the animals, which is effectually done by the application of lard mixed with sulphur, or with mercurial salts, etc.—the sulphur being preferable despite its disagreeableness, because it has no injurious or poisonous effect upon the individual.—Some of the Physicians stated that quinine was nearly a specific for malaria, yet with the reserve that some persons were injuriously affected otherwise by quinine, that it sometimes failed in particular cases, and that ordinary persons not skilled in medical science and diagnosis, *could not be certain that their sickness was caused by malaria;* and further, that the most skillful medical men could not always decide this point unqualifiedly. And just here is one great objection to *all* kinds and classes of medical nostrums, patent medicines, proprietary medicines, or good medicines sold to the general public and taken without the direction of skillful, educated, experienced medical observers. It is literally true that "what is one man's meat is another's poison"—that what will aid in the cure of a particular disease in one person will be injurious to another person affected by the same disease, but in different circumstances as to constitution, physical condition, etc.

EVEN PHYSICIANS SEEK ADVICE.

It is well known that the most skillful physicians when seriously sick themselves, or when any one in their families is very sick, never prescribes for himself or those dear to him, but calls in another physician, even if he has to summon one whom he knows to be quite inferior to himself in medical knowledge. His experience has taught him that any person with a system sufficiently disordered to need the aid of medicine, is *not in a condition* of mind and judgment to decide as to the kind of malady, or the proper remedies in his particular case. And yet many millions of people with no proper understanding of the human system, are constantly dosing themselves with the advertised and be-puffed medical nostrums that load down the shelves of all sorts of establishments and sales shops, and now, indeed, of nine out of ten of the regular drug stores of the whole land—and the advertisements of which fill the columns and furnish the support of the great mass of newspapers throughout this country and some others.

CURING BY IMAGINATION.

It has been said that "the best physicians give medicines in many cases to amuse the patient while nature is working out the cure." That such is sometimes the case we have no doubt; indeed, we know an excellent physician who was for twenty years called from once a month to once a week to see a lady in good circumstances and of more than ordinary intelligence, though at the same time of a nervous temperament. The lady always asked for a "prescription," but the physician preferred, in her case, to prepare the medicine himself, which he sent to her in the form of small pills. These pills were merely cracker crumbs made up with gum arabic and rolled in powdered rhubarb or whatever would give them the odor of "the shop." As simple and inert as they were, the pills invariably cured.——The one redeeming feature in this whole patent medicine business is the fact that *some*—would that we could say *all*—of the so-called remedies are actually as inert as the above mentioned pills—producing no other effect than to amuse those who are actually ill, while nature is curing them, and have a soothing influence on those whose disorders are of the imagination only.

MEDICINES PRODUCING INTEMPERANCE.

But there is a darker side to the picture; many, indeed most, of the medicines are not thus harmless. Most of the liquid medicines consist largely of whiskey or other cheap form of alcohol, qualified with some stuff to give a medicinal taste. Even the so-called "Temperance Bitters," and others claimed to be non-alcoholic, are open to this charge. We once collected twelve varieties of these compounds, all said to be practically non-alcoholic, and on subjecting them to simple distillation, no one of them failed to yield less than nine per cent of pure alcohol, and one labelled "Temperance," gave 28½ per cent of alcohol: common whiskey contains only 40 to 60 per cent of pure alcohol. If one takes a dose of a medicine of this kind, the alcohol acts as a temporary stimulant, and if the stuff contain Gentian or a similar drug that has a transient tonic effect, the patient "feels better" at once, even though he may not be, and usually is not, really ill. He at once is convinced; "That's the medicine," is his implicit belief, and he not only continues to take it, but commends it to friends and neighbors, who go through a similar experience of "feeling better," and the medicine has a "run"; certificates as to its excellence are given, and the stuff has a large sale.

But what is the result? Those who take it once, repeat the dose on every occasion of real or imaginary change of feelings from the slightest cause. Over-work, over-eating of poorly digestible food, loss of sleep, business troubles, or whatever causes one to feel "out of sorts," induces a resort to the "Bitters"—or whatever the stuff may be called. What should be, and what would be good health, but for the dosing, is destroyed. In fact, the person is, unconsciously no doubt, actually indulging in a moderate "spree." Indeed, a taste for alcoholic stimulants is thus formed, which *often* in the end leads to intemperance. When through this dosing the system becomes habituated to its use, and enlarged doses cease to have their former effect, the patient looks over the long medical advertisements, and finds some "symptoms" there described which seem to hit his or her present case, and a new medicine is tried. This new stuff may be either more strongly alcoholic or more positively tonic than the other, and for a while appears to be the needed remedy; but the system soon becomes habituated to this, and possibly another and another of these nostrums is tried, until the end is confirmed illness, and thus the grave is often reached long before it need have been. The same general effects follow

PROMISCUOUS DOSING

with any other form of medicine. The popular pills, for example, are of two kinds. They may be nearly or quite inert, and serve to amuse the one who takes them while nature and rest work a cure, or they are the simplest possible cathartic, and act upon the fact that in the beginning of many forms of illness a smart movement of the bowels is just the one thing needed. The harm done by these is, that special virtues are ascribed to, and a high

price is paid for, a nostrum which accomplishes no more than would a dose of some simple remedy like Calcined Magnesia or Powdered Rhubarb. One feels better after a dose of this or that pill, and advises his friends to use them; the maker sells for 25c. what costs him but a cent or two, and fortunes are made from a pill of which, were there a general knowledge of the simplest laws of health, not one could be sold.

These illustrations apply to about all varieties of "patent" medicines, so-called—though they are not patented at all, but are really secret remedies. We have looked into this subject, and our observations during these many years have fully satisfied us that these "patent" or quack medicines have, in our country at least, killed more persons and caused more suffering and more want than all the wars since the Declaration of Independence, and that in the annual destruction of life and health, the use of these medicines and the intemperate use of alcoholic drinks are twin agents of the King of Terrors. A physician lately said to us: "If the sale of medicines were entirely stopped, except when prescribed by a regularly qualified physician, it would compel half the doctors in the country to go into some other pursuit or starve, for the use of quack medicines supplies more than half the business to the medical profession."—And the remark is undoubtedly true.

QUACK MEDICINE PROFITS.

Immense fortunes have been, and are still being made by a few from the manufacture and sale of these secret compounds. There are many miserable failures also, but these are seldom heard of. One great element in the success of these things is cheapness; the first cost of the article must be very low. The most important point is to hit upon a taking name, and one that will convey the idea of applicability to a wide range of diseases—there is "much in a name," in this case. There must then be an account of the origin of the stuff—its discovery, and this should be such as to throw about it an air of mystery, or the glamour of romance or fable. The cost of the stuff being low, the retail price should be correspondingly high—a price of $1, $1.50 to $3 for a bottle or box that costs 5, 10 or 15 cents, allows, after giving the retail agents a liberal discount of one-third to one-half, something to pay for wholesale advertising and still have a "living profit" left for the maker. It requires some capital to launch such a thing, and get it started. There must be a general outbreak of advertising, a giving away of a few dozens on trial, and if the stuff only has whiskey enough in it to make people "feel better," certificates to its excellence can be obtained at once, though those from patients who have been cured as well as from M. D.'s who testify to its efficacy are easily *made up* at the start. The advertising of these things is an art of itself. There are papers, we are sorry to say, that will sell whole columns—yes, whole broad pages, to the stirring announcement, and if these give a sufficient variety of symptoms and a strong list of wonderful cures, the thing *may* go. It will be wonderfully helped if almanacs advertising the stuff can be scattered by thousands, and circulars of convenient size to use as wrapping paper are furnished dealers in small wares free of cost.

PLENTY OF VICTIMS.

All experience shows that among some 40 or more millions of people there will be found, if the work is done effectively, some hundreds of thousands, if not millions, of nervous imaginative persons with supposed or real disorders who are always ready to *try* any new thing that claims to afford them relief, and it is these tryers who afford a large supply of regular customers—for a while at least—for every new medicine that is offered.

Such in brief is the real history of each one of the so-called "patent" medicines, that are now before the public, or have passed into the limbo of things forgotten. Let any one notice at the freight depots and see the hundreds of tons of these health-destroying, death-dealing "medicines," and then look at the columns of the majority of the ordinary newspapers and see how largely these sheets are sustained by the advertisements of a trade that keeps hundreds of printing presses and even paper mills at work, and he will have some idea of the magnitude of this traffic, and will not wonder that in some cases large fortunes result from it—fortunes to a few—but what of the many who support it at a fearful cost of money and health, and life?

We would not imply that all medicines that are put up and offered for sale are objectionable, for some, like a well known extract of ginger and a few others are not secret preparations; their composition is known and their effects well understood. But the great mass of the secret medicines offered to the public are health and life destroying, and those who assist in their distribution in any manner are, to say the least, in bad business. No journal assuming to be a director of public opinion, or a conservator of the public good, should be so ignorant as to have any part in this nefarious business.

We need hardly warn the reader to let every thing of the kind alone, and to not tamper with his health and vigor by taking *anything*, of which he does not know the composition. In most slight ailments attend to the diet and nature will do the rest. If really ill enough to need medicine, do not be wiser in your own conceit than the skilled physician, who goes to another in sound health for advice, but like him remember that a disordered body affects also the mind, and when advice is really needed, seek it from a proper source. It will be an immense saving in money and in health—in life.

NEVER READ MEDICAL ADVERTISEMENTS

of any kind, in newspaper, almanac, or circular. They will only work upon your fears, by their skillfully array of symptoms and cures. Your imagination will most likely find some "*symptom*" which it will do no good to learn about. It is told of a certain nervous medical student that in going through his text-books he actually believed himself affected with nearly every disease of which he read a minute description.—A number of medical gentlemen once arranged themselves to meet at different points on the road a gentleman who was to come home from a village a dozen miles away. Each inquired after his health, and spoke of how ill he appeared. The man came to believe himself really sick, and on reaching home, went to bed, and had quite a course of fever.

FINALLY,

the readers of the *American Agriculturist* have not for a quarter of a century been troubled with any of these distressing medical advertisements in its columns. It has cost an effort, at times, to reject some of the better class of these—if there can be any better class among things absolutely bad—especially as by this course we cut off a large source of profitable income. Those who make a thousand per cent upon their stuff, can afford to and do pay large sums to reach the people with their array of "symptoms." But we believe our readers prefer paying more for "clean pages." When they are unwilling to do this we want to go out of the business of publishing. Neither our pages nor our backs can furnish bulletin-boards for announcing what we believe to be only a public detriment, or worse.

Editorial Correspondence. — Items from "Notes by the Way."

[Mr. Orange Judd has resumed his customary summer tours of observation among farmers. These extended last year as far west as the Rocky Mountains, including Nebraska and Colorado on the south, Minnesota, Wisconsin, etc., on the north. A portion of last season's notes unaccountably disappeared from his travelling bag —those from Colorado, part of Nebraska, Mich., etc.]

Where Travellers Should Go.

Every year many thousands go on pleasure trips across the Atlantic, without having first seen our immense western country, our own majestic mountains, our grand rivers, such as the Mississippi, Missouri, Ohio, etc.—many not having even seen Niagara. It is not well to do thus. There are no rivers in Europe to be compared in size with our own. The Rhine has a little strip of 60 or 70 miles between Bingen and Coblentz, of much interest on account of the tumble-down old castles, and the legends connected with them, but nothing to be compared in scenery with the Upper Mississippi between Minneapolis and La Crosse, and even down to Clinton, while from Cairo down a thousand miles, it is simply grand from its width and great bends. A ride of 1,000 miles from New England or New York to Chicago; then of 500 miles from Chicago to Omaha, and another of 500 miles on to Cheyenne, over the broad plateau, greatly expands one's ideas and enlarges his conceptions of the vastness of our country. No journey in Europe approaches it, unless it be a trip from Berlin in Prussia to St. Petersburg in Russia, thence 700 miles from St. Petersburg southeast via Moscow to Nijni Novogorod on the Volga. A journey of 750 to 1,000 miles northwest from Chicago, across Wisconsin, Minnesota, and out into Dakota, is of almost equal interest—with its pleasure greatly hightened by a return via Duluth and down through the great lakes to Buffalo or Montreal.—A trip of 300 miles south from Cheyenne, down through Colorado's Plains, to Colorado Springs, and the adjacent Pike's Peak, with side journeys into the Rocky Mountain mining regions, has, or ought to have, more of interest to every American than a run over Switzerland—at least the former should *first* be taken, and the trip is far less expensive, and has far less annoyances. A line addressed to the Union Pacific R. R. Company, at Omaha, Neb., will bring descriptions of the route and particulars as to cheap excursion tickets. A similar line addressed to the Chicago & Northwestern Railroad Office in Chicago, will bring like information about excursions to the northwest.

A Noteworthy School.

The Seminary at Lima, 18 miles southeasterly from Rochester, N. Y., has done a grand work during the past Fifty Years. Of the Twenty Thousand or more Students, mostly over 14 years of age, who have enjoyed its educational advantages, a very large proportion have come from the farm homes of Western New York, though not a few have come from more distant localities, Canada supplying a liberal share. Many of these students, of both sexes, are now occupying high positions of honor and usefulness all over our own country, and some abroad; but the larger number of them have returned to the farm, and are now the intelligent Cultivators and House-keepers so numerous in the "Genesee Country." At the great "Semi-Centennial" Gathering, June 6–10, we met perhaps a hundred or more of those with whom we studied 37 to 40 years ago—almost all of them with fast silvering locks, but with the intelligent countenance that shadows forth an educated mind. How the hopes, the ambitions, the struggles of early manhood, come back afresh when one meets and recognizes so many earlier companions after the long separation. Who could fail to "renew his youth" on such an occasion? While many of our readers would enjoy an account of the Semi-Centennial exercises, we must not take space for this that belongs equally to hundreds of thousands of others not personally interested. We will, however, speak of

One Feature of the Seminary at Lima,

which specially characterized it during its earlier years, and is still kept up somewhat at least. We refer to the facilities for superior educational advantages at *low cost*, both for tuition, board and incidentals. While the Institution furnishes advantages equal to nine-tenths of the so-called Colleges, for everything from common English to the higher studies, the tuition charges are but nominal, and in our day at least, it detracted not one whit from a student's standing, or from the esteem of his teachers and of most of his fellows, that he wore home-spun, that he boarded himself on 25 cents, 50 cents, or a dollar a week, *and earned it* as he went along, in the garden, in the haying and harvest fields, in mechanical work, in peddling, in canvassing for books and periodicals, in repairing clocks during vacation, etc., etc. We know a good many who came to Lima from small farm homes 35 to 40 years ago, with only a few dollars in their pockets, and boarded themselves in small attic rooms rented for 25 to 50 cents a week, who literally earned their way, who stood high as close students, and who are now occupying most important and influential positions—some of them owners of grand, well-cultivated farms, some presidents of colleges, some judges and governors, some distinguished ministers, some editors of leading journals, etc., etc. The early habits of *economy*, of *self-reliance*, of *push*, acquired in such circumstances, are of invaluable benefit, in all after life, whatever one's occupation, calling, or position. Multitudes of farmers' sons and daughters from 3 to 30 miles or more around, hired their little rooms, furnished them from home, and received their provisions from the home stores once or twice a week. Probably during 50 years past five to eight thousand or more farmers' sons and daughters have received more or less of superior education that they would not and could not have obtained but for such economical facilities as were supplied, and the system of living, in one sense, fashionable at Lima. The high and graded public schools, now so common, have been in existence but a few years.

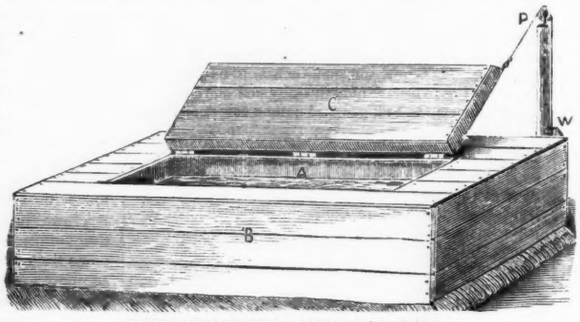
Windmills Good on Eastern Farms.

The windmill is found so useful throughout the prairie regions that one can hardly drop down at any spot between Indiana and the western limits of settlement, without seeing one to a dozen farm windmills within range of the vision. Until quite

recently they have not been considered specially adapted to eastern farms, except when there chanced to be an unusual wind exposure.—In our present journey up through New York State, we find a considerable number in operation, and learn that many more are ordered, or to be ordered, for this season. We write this 1¼ mile east of Lima, Livingston Co., sitting under the covered frame of a "Stover" Windmill on the farm of Samuel Bonner. This mill has been in use over a year, and, with the exception of a single day, has, summer and winter, supplied some 40 head of cattle and horses, and 50 or more sheep, with fresh water from a deep well, and not a tithe of its power has been required. No care has been needed except to stop it when not wanted, and no expense except a little oil for its gearing, while it promises to be good for a dozen or twenty years. It is on a level farm, stands on a frame 40 ft. high; wheel 10 feet diameter. It is entirely self-regulating, the wings turning edgewise to the wind when it blows too strong, and any desired rapidity of motion can be secured, whether the wind be high or only a light breeze. The cost was $100 for the mill and gearing, and the agent supplied and put up the frame, all complete, for $25 more. Mr. Bonner afterwards boarded up the lower part of the frame, making a comfortable room for tools, etc., at small additional expense. The pump is a double-geared force-pump, so arranged that the whole or part of the water can be driven out of the top spout to the water-trough, or a part or the whole be driven into a side-pipe below the surface, which carries it to any desired distance. Some send all the water thus to a milk-room, where it surrounds milk cans, and flows from thence back to the stock yards. Others have a branch pipe into the dwelling for the house supply of water. The windmill will force it to any desired hight, as to a tank in the house chambers or bath-room. This pump, with tubing, costs about $25. Cost of the whole $150.—Allow ten per cent per annum for interest and wear, and the annual cost is only $15, which is saved several times over in the labor of pumping water for the stock alone. There is a supplemental hand-lever that can be readily used for hand-pumping if needed, but there has been only a single occasion to use this in a year, in a dry time when there had been no wind stirring for several days.—[On the farm of A. W. Comstock, two miles west of Lockport, N. Y., we saw an arrangement like the above, except that the shaft from the windmill was attached to the top of the rod of a common wooden pump, reducing the total cost to $125, as the pump was already in the well. The windmill frame is 34 feet high. It supplies abundant water for 50 cattle and horses, and for dairy purposes. Mr. Comstock keeps some 40 cows, and by special care and skill secures a cheese that sells to regular customers at considerable above the market rate. He uses no ice, but cools the milk in cans in a large box near the windmill which keeps a supply of cool water around the cans.]

Protected Water-Trough for Stock.

Near the windmill, on Mr. Bonner's farm, we saw a convenient watering trough or tank, which may be useful in most cold regions. A supply of water, not usually ice cold even in winter, is desirable for all domestic animals. The tanks may be of any desired size. Mr. Bonner's consists of an inner water-holding, plank box, *A*, 11 feet long, 4 feet wide, 22 inches deep, holding about 18 barrels, and open at the top. On the four sides a box, *B*, is built of inch boards, 12½ feet long, 5½ feet wide, and 30 inches high, which leaves a space of 8 inches all round for filling with sawdust. A double cover is made of boards 8 inches apart, with an opening at the side next the stock yards, 7, 8, or 9 feet long, and some 2 feet wide. The sides of this are boarded up, the opening being a little smaller at the bottom. All the enclosed space is filled with saw-dust, the same as the sides. A double cover, *C*, to fit the opening is made and also filled with saw-dust. This cover has heavy strap hinges at the back, and is nearly balanced by a stone, or other weight, *W*, attached to a cord, *P*, running over a post to the rear of the tank, so that a child can lift or close the tank cover. At Mr. Bonner's the cord runs to the enclosed room around the base of the windmill frame, and an iron weight is attached there, so that the tank cover can be opened and closed from this room. The front of the tank is sufficiently banked up for sheep to reach the water. An inlet pipe comes from the pump, and an overflow pipe from near the top of the water box carries off surplus water. The whole arrangement is easily and cheaply constructed. The water from the well is not very cold, and being frequently changed by fresh supplies, seldom freezes. During last winter ice was seen in the tank but once, and then only a thin film, which dissolved in fresh water.



PROTECTED WATER TROUGH FOR STOCK.

Value of One Improved Animal.

In Mr. Bonner's barn we noticed a good Shorthorn Bull, two years old last spring, thorough-bred, registered, that cost $150 we believe. He was kept for the double purpose of improving the stock of the farm and of the neighborhood as well, and for the latter purpose was let at the low rate of $2 per service. His progeny for the present year will number at least 60, yielding say $120, though a considerable number of these will be in the home herd. A little figuring will show the value of a single such animal. The calves will be worth $8 to $10 each at one day old, while the ordinary "natives" sell for only $1 each when dropped—an increase of $7 to $9 each. Call the increased value only $5 each, a very low estimate, and the increased value of the 60 calves will be $300, or twice the cost of the bull. But look a-head a little: The expense of raising 60 animals to three years old will be about the same for natives or good grades; but at that age the improved animals will sell for at least $25 more per head—equivalent for the 60 animals of this one year's get, to at least $1,500. Let it be kept in mind that this result will surely come from keeping this one $150-animal a single season, while his value a year hence will be quite as large as now. And this result may be depended upon annually for half a dozen years. There is no doubt that the above figures will be fully realized. Query: Why are not more such breeding animals introduced into every neighborhood where farm stock is kept?—Similar figures apply to horses, swine, sheep, etc.—A multitude—indeed the great mass—of farmers do not hesitate to graft their native apple trees with improved cions, yet they are satisfied to keep on raising, caring for, and using "scrub" animals, when every dollar expended in improved blood is speedily returned many fold!

The "Genesee Wheat Country."

Forty to forty-five years ago, when we were personally familiar with the farming in this region, Winter Wheat was the chief money crop. The counties of Genesee, Livingston, Ontario, Wayne, Monroe, Orleans, Niagara, Cayuga, Onondaga, Seneca, Cortland, and at least a part of Erie, Wyoming, and Yates, embraced what was once known as the "Genesee Wheat Country"—a district producing such excellent grain for flouring, and in so large amounts, that it was known the world over as *the* wheat field of America. About 40 years ago, we believe it was, the insects began their extensive ravages. But after they became less troublesome, wheat remained in disfavor; farmers said the soil was "wheat sick," and for a long time wheat was almost a secondary crop. Ohio, Indiana, part of Michigan, Wisconsin, Minnesota, and the far Northwest, successively lead in the reputation for winter wheat, while Illinois, Iowa, Kansas, and Nebraska, one after the other, came forward with the immense supplies of excellent spring wheat. But judging from what we have seen during a few years past, and especially during the present journey, the "Genesee Country" is fast regaining its former position as a great wheat producer, and Ohio promises this year again to come to the front. During a few days past we have seen in Livingston, Genesee, Niagara, Monroe, and Orleans counties a great number of fields of standing wheat—in close succession all along the routes we travelled—that fairly eclipse anything we remember in the olden times—fields whose thickly standing, uniformly distributed, strong stalks are crowned with heads that indicate 25, 30, 35, and often 40 bushels per acre.

Whence this Improvement?

We talked with many farmers, and the answer seems to be: (1st.) Rest of the soil, that is, time given for sun, air, moisture, and frost, to release fertilizing elements previously locked in undecomposed rocky, or stony fragments.—(2nd.) Improved varieties of wheat, among which the "Clawson" seems to be the leading and favorite variety.—(3rd.) Better mechanical working of the soil by improved implements.—(4th.) A judicious rotation of crops.—(5th.) Much freer use of fertilizers, especially, (6th.) The use of superphosphate. Of the last named, we have seen remarkable instances. For example, we have gone through wheat fields that promise 25 to 35 bushels per acre generally, while strips through the same fields will hardly yield 10 bushels per acre. The soil and treatment were the same every way, except that the poor strips did not receive the 200 to 300 lbs. of superphosphate per acre, which was applied to the rest of the land. These are exceptional cases, but other fields point in the same direction.

A Crop Rotation.

The system of rotation of crops in the wheat-growing section of Livingston County, N. Y., and we believe it is substantially the same through the "Genesee Country," is about as follows:

Year.

I.—Wheat with some Timothy seed sown in October, and liberal Clover seeding in spring.

II.—Pastured somewhat in autumn.

III.—Clover mown, with second crop ("rowen") cut for seed.—Variation, pasturing instead of mowing, if needed for that purpose.

IV.—Early clover growth turned under and corn planted, the chief yard manure of the rotation being applied to the corn.—Variation: If the clover is doing well and hay or pasturage is specially wanted, the clover is allowed to stand over another year.

V.—Barley (or oats) in spring on the corn stubble, with wheat in autumn, with phosphates. Some apply part of the yard manure of the course, as a top-dressing to the wheat in autumn, while others plow it under in preparing the wheat land, especially if the manure is not well rotted.

Manuring with Brains.

In our travels we visited the farm of one of the old readers of the *American Agriculturist*, who exemplifies our Timothy Bunker, Esq.'s brain-manure theory. (We shall not give name or location, for our subscriber is entitled to continue his practice until his neighbors become wise enough by reading this or some other journal, to utilize their home supplies). Every spring our subscriber sends out a man with a large box-wagon into all the region round about, to clean up their hen-roosts for them. He finds them quite ready to let him gather all the droppings he can scrape up and take away, at 15 cents per bushel. He generally collects 30 to 40 bushels a day, according to "the

finds" he chances upon, as the gold miners would say—though he understands the region so well that he knows where the best "lodes" are to be found. This manure is brought to the covered manure deposit, where it is mixed with dry earth, and some plaster and salt, to about double its bulk. Applied at the rate of say 10 bushels of the mixture per acre, to corn, and indeed to all other crops, it produces grand results, at less than one-fourth the cost of Guano or the best Superphosphate, and even at far less cost than the best and cheapest barnyard manure. Brains do pay in farming!

Farms of Charles Keep.

A variety of items were noted during a visit to the farms of Charles Keep, about two miles east of Lockport, Niagara Co., N. Y. Mr. Keep has been in business many years, and recently turned his attention largely to agriculture. He has some 500 acres in adjoining farms, which are "worked on shares" by two or three experienced men, but the owner, we judge, takes a lively interest in the direction and management, as he seemed to thoroughly understand every item, and but from his own account, we should have supposed he is himself *the* farmer. First we noticed the windmill, which has been doing effective service for three years, and very satisfactorily too, in supplying all the water for a large amount of live stock, and other purposes. The wings somewhat resemble an old-fashioned bonnet, with the lower or back half of the crown cut off. It is named the "Nysewender's Turbine Windmill," made in Ohio, by Mast, Foos & Co., all the parts being of iron. The cost, the self-regulating, etc., are similar to other good forms of windmills. Mr. Keep prefers the iron wings, because less liable to the action of the sun and moisture. [There are at least seven or eight good self-regulating windmills, any one of which will do excellent service, such as the "Halladay Mill," made by the U. S. Wind Engine and Pump Co., Batavia, Ill.]

Cement-floored Horse-stalls.

The floor of the horse-stables, stalls, and carriage room, is made of a thick layer of small stones, gravel, and sand (at the top), all bound into a solid stone-like bed, with hydraulic lime. Under the stalls it inclines sufficiently to carry the urine to a broad but shallow gutter, and this falls enough to take the urine and washing-water off at one side. The vehicles stand upon the same kind of flooring, a little higher than the stalls. Under the horses, for them to stand upon, 2-inch-thick plank are laid half an inch apart; the openings serve as gutters to carry the urine over the cement below to the rear gutter. As this cement extends to the walls all around, there are no hiding places for rats.

Fattening Lambs for Spring Mutton.

In December of 1879, Mr. Keep, with his lessees, bought some 900 lambs from the farmers in the country around, at an average cost of about $2.50 each. About 400 of these were kept in the high basement of a large barn, surrounded with heavy stone walls, with windows to admit moderate light and for ventilation as needed. This basement was all in one room in the form of an L, the two longer sides being 130 feet each, one arm 30 feet wide, and the other 40 feet wide, furnishing 7,900 square feet of floor room. There are six ventilators from each sheep-room, 15 to 18 inches square, running up through the barn, to carry off foul air, surplus heat, etc. The flooring is of cement, the same as the horse stables, with suitable depressions for carrying off water if needed. About 500 of the lambs, with some sheep, were kept in the basement of another barn on an adjacent farm,—a single room 160 feet long and 56 feet wide, giving about 9,000 square feet of flooring—cemented like the other. The lambs were separated into lots of 15 to 25 in pens, formed by movable feeding racks (described and illustrated below.) Water troughs, supplied through pipes from the windmill pump, were placed at convenient points.

Portable Sheep-Racks and Pens Combined.

Those in Mr. Keep's Sheep-room (the barn basement room) are constructed thus: Corner posts, *a*, *a*, of 3½x2 inch strips, 3½ feet high. A 6-inch board, *b*, *b*, all around the top. About 20 inches from the ground a 6-inch board, *c*, is nailed on in front and at

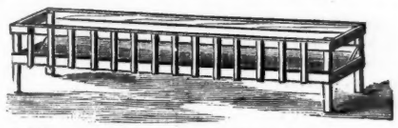


Fig. 1.—PORTABLE SHEEP-RACK COMPLETE.

the ends, and an 8-inch board, *d*, along the back. A board 6 inches wide, *e*, is fastened underneath along the front. Back of this a 16-inch wide board, *f*, stands inclined against the back. This slides the corn or roots down into the trough formed by the front and end boards, the narrow bottom piece, and the inclined board.—In front, perpendicular strips, *s*,*s*, about 4 inches wide, are nailed on, leaving the openings between them about 7 inches wide—but further apart if for large and full-grown sheep. —These racks are about 18 inches from front to rear and generally 16 feet long, but vary in length to suit the divisions required. In use they are arranged to form sheep-pens oblong or square—the walls of the room forming one side of the outside rows of pens. The general form is a 16-foot rack set parallel with the walls, and two others 12 to 15 feet long forming the other two sides, or one of them shorter to leave a passage to a water trough. The backs of the racks of two sets of pens are set 3 to 4 feet apart, leaving a passage way for carrying in the feed—hay, roots, and corn. The manure is taken out two or three times during winter, when the ground is frozen, so that it can be taken on to the fields. When not in use these portable racks are piled up at one end, leaving the room free for driving in teams to haul out the manure. Two men can handle them readily. To reach the sheep, or let them out or in, the ends of the racks can be swung round like a gate. They are made by contract at a neighboring shop, at the cost of 15 to 16 cents per running foot.

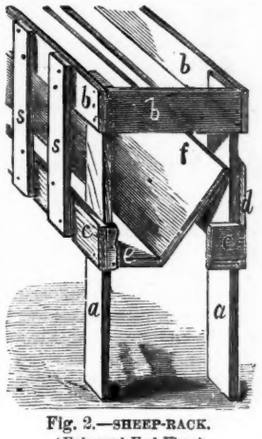


Fig. 2.—SHEEP-RACK. *(Enlarged End View.)*

The Lambs were Sheared in December.

The warm room, with the heat of the flock, kept them from being cold, and they maintained a healthy condition. Abundant straw was daily supplied, to thoroughly absorb all liquid and solid droppings, and furnish dry warm bedding. As it accumulated, the feeding racks were raised to stand upon it. It was believed that the lambs would grow and fatten faster, with the wool thus removed, while the wool-clip sold for nearly enough to pay the purchase cost of the animals—owing to the extraordinary advance in price last winter. (The farm account-book shows the sales from 500 lambs of 2,733 lbs. of wool, unwashed, for $1,071, or about 39 cents per lb.) These lambs were mainly grade Merinos, estimated to average about 50 lbs. each, when bought,

Feeding and Profits.

The lambs were supplied all the clover hay they would eat, and they nibbled somewhat upon the fresh straw as it was daily supplied for bedding. They also had corn *in the kernel* (unground) beginning with one bushel per day for each 100 lambs, and gradually increasing until they finally had all they would eat. They also had daily rations of turnips (mangels); the 900 lambs and 200 sheep consumed 8,000 bushels—say 7½ bushel each—during the winter. After three months feeding, they had increased to an average of 97 lbs. each (varying from 80 to 130 lbs.); they were in high condition, and were taken by dealers, in two large lots, mainly for the New York market, at five and five-eighths (5⅝) cents per lb., live weight, or over $5 per head. The price received for the wool, with the final sale, left just $5 per head for three months feeding and care. No account was kept of the cost of the feed or of the value of the manure; the feed being all grown upon the farm, the profits went into the general profits of the farm for the year. (In another conversation we learned that the sales from 130 acres, divided between the Owner and Lessee, after deducting the cost of 500 lambs, amounted to $4,400, or $33.84 per acre—$16.92 per acre going to the owner for the use of the land, with the soil in an improved condition, and the large supply of sheep manure to enrich it still further for future crops. Mr. Keep gives large credit to the Lessee, Seneca B. Foot, for the successful results obtained.)

Soiling Stock—Hiring Sheep Pasture.

Mr. Keep believes it more profitable to have all his arable land constantly growing crops. Clover seed (with no Timothy) is sown freely every spring upon the wheat fields, with 100 to 150 lbs. of plaster per acre, sown broadcast. The meadows are usually mown twice a season, and the cattle are kept in yards, but allowed the range of the wood lots in hot weather. He supplements any deficiency of clover to furnish a full supply of hay, by using Hungarian grass, sowing 3 pecks of seed broadcast, on well manured land, and cutting and curing the crop just like other hay. The stock sheep are hired out to pasture on neighboring farms at 2½ to 3 cents per week each, during summer, where they have a partial range of woods, and they are fed during winter on clover and mangels, with corn if to be fattened off for spring mutton.—All the wheat and other straw is housed in the large barns, and used freely enough to absorb the entire solid and liquid manures from all farm animals. Both cattle and sheep pick it over and eat more or less of it with their richer clover and Hungarian grass. The amount of good manure thus secured from the live stock keeps the fields up to a high state of fertility.

Phosphates Producing no Effects.

While some farmers in the vicinity have found Superphosphates of much benefit, this has not been Mr. Keep's experience. He asked us to go through a wheat field which had received 200 lbs. per acre of Lister's Superphosphate, and pick out the strips left without Phosphates for comparison. We were utterly unable to select them or to find any difference in the growth of straw, or size and plumpness of the heads, though we passed back and forth across the strips *with* and *without* phosphates. Before giving it up, Mr. K. will try another brand of phosphates, to see if the lack of effect upon the grain crop be not due to poor quality.

Wheat after Wheat.

The field of 22 acres above referred to is mostly a heavy clay, drained only by ridging and deep dead-furrows. In 1878, it was an oat stubble, with little vegetation upon it. After summer-fallowing it was sown to wheat; the dead-furrows were too shallow, and it drowned out so as to yield only 10 bushels per acre, and the clover did not catch. After cutting the wheat, 250 sheep were turned in, and they ate up about every green thing, including a considerable supply of Canada thistles, of which they even ate the plowed up roots, so that none are visible this year. As it was plowed, the soil turned up in large clay lumps. These crumbled in the sun and rain by the last of August, when the harrows and clod-crushers were kept on until the surface was fine. Five heavy loads per acre of well-rotted manure were harrowed in, and the first week in September wheat was drilled in with 200 lbs. per acre of phosphate above noted, except on the test plots. The dead-furrows were cut deeply and clover sown last spring, which shows a good catch.—To-day (June 15) the whole field shows good for 25 to 35 bushels per acre, the latter on the dryest portions. It goes against the opinion of those who predicted a failure in wheat after wheat. But this is a strong clay soil, and it was finely manured, besides the previous crop was poor.

A Half-Stone House, Costing $2,000.

BY S. B. REED, ARCHITECT.

The design here given represents a substantial and convenient house for well-to-do farmers, or others, who may find it suited to their circumstances. The outside walls of the first story are of stone, and for this reason the design will be of special interest to those living where building stone is at hand. In point of economy, where stone walls are determined upon, there is an obvious advantage in this half-stone method. The ratio of cost in all masonry increases in proportion to the difficulty in elevating and handling such heavy materials above a convenient hight....**Elevation** (fig. 1).—The outside and openings are symmetrically arranged. The walls of rough masonry accord entirely with the sense of fitness for all rural structures, and they may be made very pleasing in appearance by distributing close clinging vines along their sides, which soon grow, and add greatly to the home-like aspect. The foundation or cellar walls show 18 inches above the ground, just sufficient to allow for windows to supply necessary light and ventilation to the cellar. The principal walls being of stone, there is very little outside wood-work to be destroyed by dampness from the ground or shrubbery. The body of the building may therefore be set as low down as desirable for convenience. The site, however, should be elevated, for dryness and appearance. The earth taken from the cellar excavations will be sufficient in most cases to raise the grounds one foot immediately surrounding the house....**Cellar** (fig. 2).—The hight is 6½ feet. It has suitable windows for light and ventilation, and at the same time is sufficiently below ground to be warm in winter and cool in summer. An outside entrance is placed under one end of the rear veranda. The Chimneys are centrally located, and have openings in them for ventilators leading through continuous flues to the top. Stairs are arranged leading to the kitchen above. .....**First Story** (fig. 3).—Hight of ceiling, 10 feet. A hall, three rooms, pantry, rear entry, and closet form the general divisions of this story. There are three outside entrances, one in front and two in the rear. The Main Hall is of convenient shape and size, and is entered from the front porch; it connects with each of the principal rooms, and contains the main stairs. The Parlor is octagonal in form, with openings symmetrically arranged, and with windows disposed to the best advantage for outlooks and views. The two sides are unbroken, giving space for wall furniture. The Dining-room is of fair dimensions, and is accessible from the outside through the front hall and rear entry; it is in convenient connection with the parlor and pantry, and has windows in front and on one side. The Kitchen is conveniently arranged, has an open fire-place suitable for a range, with a large double window opposite; it connects through doors with the main hall, pantry, cellar stairs, and rear veranda, and contains a pump, sink, and three wash-tubs. The Pantry is full size, has an outside window, and is thoroughly shelved. The rear entry is designed as a private entrance, and has cleats and hooks for overcoats, etc. The chimneys are located where the warmth will be saved to the interior, and greatly lessen the quantity of fuel required to keep the house warm in cold weather....**Second Story** (fig. 4).—Hight of ceilings, 8 feet. There are a hall, four chambers, a bed-room, and four closets. It will be seen that there is no waste room. The stair-landing or hall is in the center, and though occupying but little space, has five doors leading to the several apartments, besides one door opening to the garret stairs. Each of the rooms is of fair dimensions, and has abundant window openings. The head-room for the main stairs is partially taken from the bed-room floor, forming an angle, with clear head-room from the ceiling below to the face of the partition seen to cross the stairs.—This angled portion is "squared up," forming a shelf in the bed-room....**Attic.**—The plates show 2 feet, and the center 11 feet above the floor. The whole is floored over roughly for storage, etc....**Construction.**—The cellar and first story walls are of broken stone laid in best mortar, in the cellar 18 inches thick, and in the first story 16 inches. All sills and lintels are of blue stone. The frame is of sawed timber of sizes indicated in the estimate. The siding for the upper portion is clap-boards, laid on sheathing boards of even thickness. The roofs are of shingles laid on spruce lath. The inside flooring is of 8-inch spruce tongue-and-grooved; outside of 4½ inch pine. The cellar windows have three lights each, and are hung with butts; all other windows four lights, hung to balance weights with best cord. All doors are of pine, panelled and molded. Plumbing as described in *American Agriculturist* for March, 1880, page 93. Plastering three-coat work. Painting two coats....**Estimate.**—Cost of materials and labor:

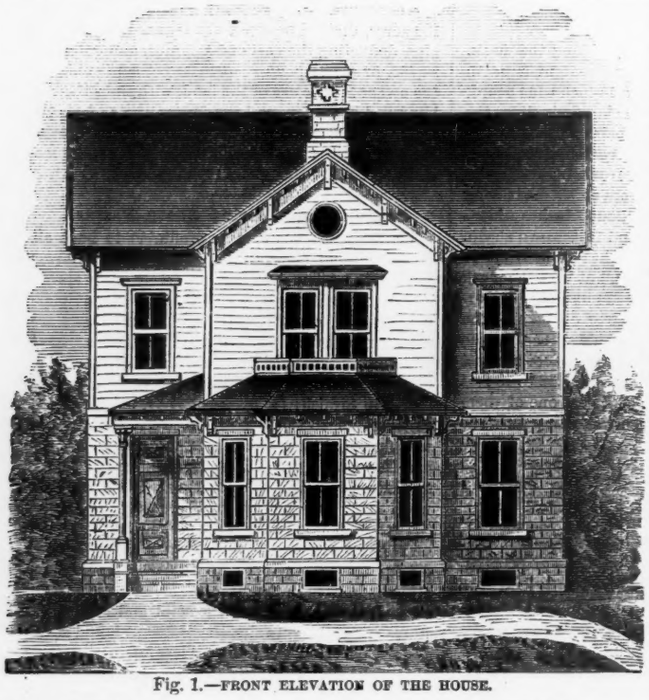


Fig. 1.—FRONT ELEVATION OF THE HOUSE.

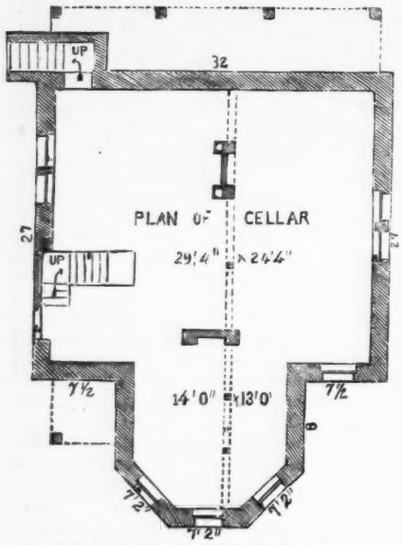


Fig. 2.—PLAN OF THE CELLAR.

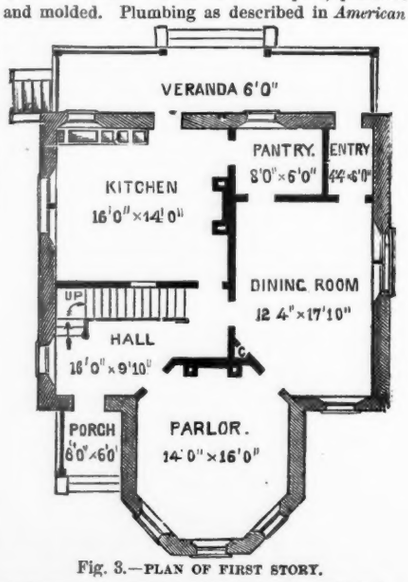


Fig. 3.—PLAN OF FIRST STORY.

115 yds. Excavation, at 25c. per yd.			$ 28 75
184 perches Stone-work (complete), $2.75 per perch.			368 50
130 feet Blue Stone (sills, lintels, and area steps), at 12c. per foot			15 60
5,000 Brick in chimneys (complete), at $12 per M.			60 00
660 yds. Plastering (openings out) (complete), at 25c. per yd.			165 00
6,000 feet Timber, as follows, at $15 per M.			90 00
1 Girder	4x8 in. 38 ft. long.	14 Beams	3x8 in. 18 ft. long.
17 Beams	3x8 in. 15 ft. long.	14 Beams	3x8 in. 14 ft. long.
12 Beams	3x8 in. 17 ft. long.	8 Beams	3x7 in. 16 ft. long.
13 Beams	3x8 in. 13 ft. long.	14 Beams	3x7 in. 18 ft. long.
Sills	8x8 in. 140 ft. long.	14 Beams	3x7 in. 14 ft. long.
11 Posts	4x7 in. 10 ft. long.	2 Valleys	3x7 in. 14 ft. long.
2 Ties	4x6 in. 9 ft. long.	36 Rafters	3x5 in. 18 ft. long.
Ties	4x6 in. 27 ft. long.	18 Rafters	3x4 in. 11 ft. long.
Ties	4x6 in. 16 ft. long.	1 Ridge	3x8 in. 35 ft. long.
1 Plate	4x8 in. 32 ft. long.	1 Ridge	3x7 in. 18 ft. long.
4 Plates	4x8 in. 9 ft. long.	1 Veranda	3x7 in. 66 ft. long.
16 Beams	3x8 in. 16 ft. long.		
75 Joists, at 15c. each			11 25
200 Wall Strips, at 12c. each			24 00
150 Sheathing, 9½ in. (body of 2d story), at 25c. each.			37 50
260 Siding (6-inch Clap-boards), at 12c. each			31 20
32 wide Ceiling for Gables, at 28c. each			8 96
Cornice materials			35 00
350 Shingling Lath, at 6c. each			21 00
57 bunches Shingles, at $1.25 per bunch			71 25
200 feet Tin, Valleys, Gutters, and Leaders, at 8c. ft.			16 00
54 feet 4-inch Flooring (for outside), at 25c. each			13 50
345 feet 8-inch Flooring (for inside), at 28c. each			96 60
9 Cellar Windows (complete), at $3 each			27 00

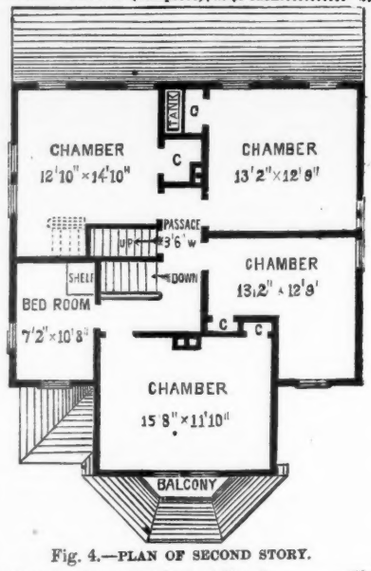
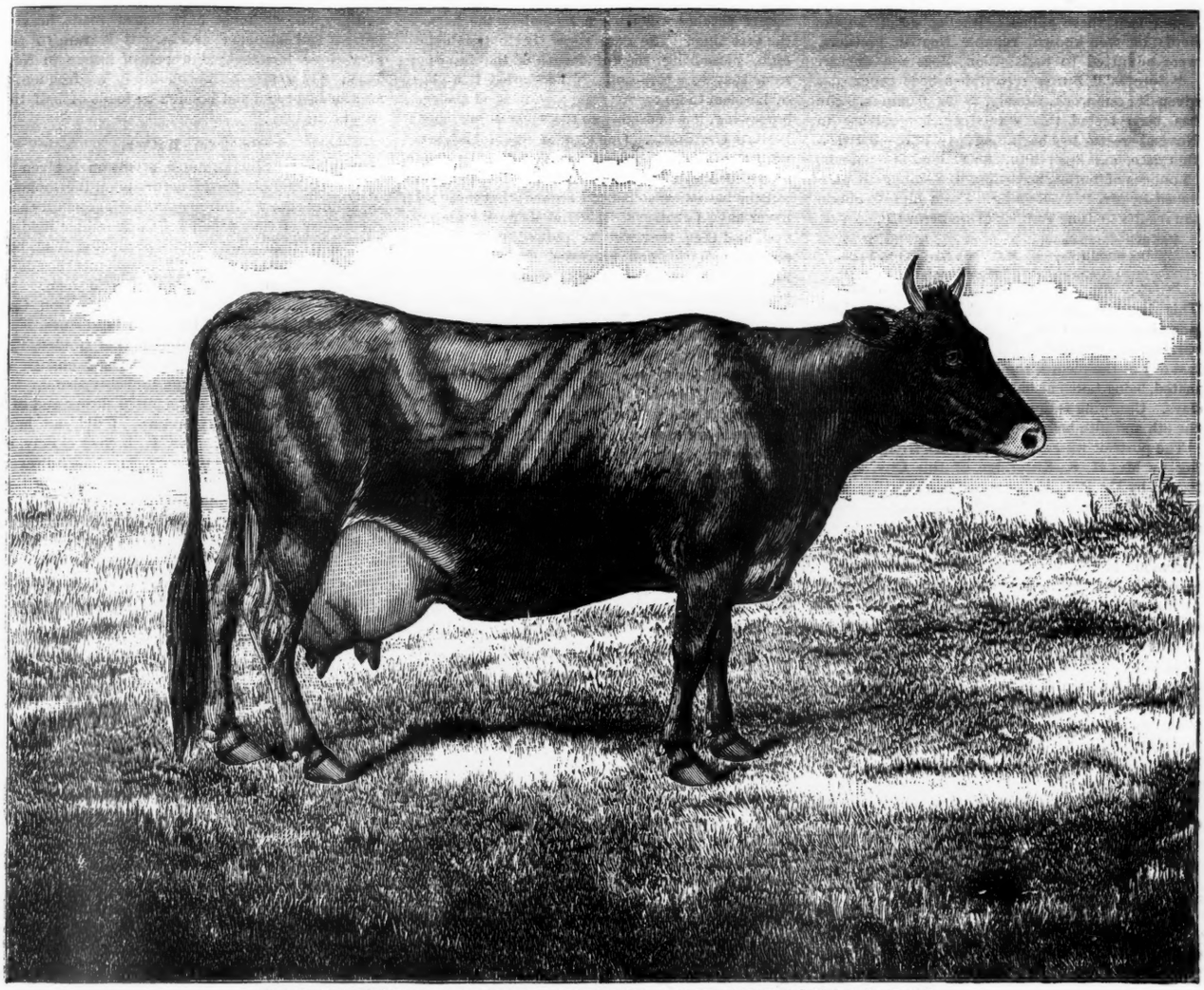


Fig. 4.—PLAN OF SECOND STORY.

24 Plain Windows (complete), at $8 each		192 00
22 Doors (complete), at $8 each		176 00
Porch and Veranda (complete)		30 00
Stairs (complete), $40; Mantels (complete) $40		80 00
Closet finish (complete)		15 00
Plumbing (complete, $50; Carting, $15		65 00
Painting (complete)		100 00
150 Furring Strips 1x2x12, at 4c. each		6 00
Carpenter's labor, $120.00; Incidentals, $94.89		214 89
Total		$2,000 00

The Jersey Cow "Eurotas."

In April, 1873, Col. R. M. Hoe, sold out his herd of Jerseys. They were chiefly, perhaps entirely, of his own importation and breeding. The sale was widely advertised, and largely attended, and Mr. A. B. Darling, of Darlington, N. J., the well-known host of the Fifth Avenue Hotel, paid the highest prices, and bought the best animals. For "Vesta," (1235), an imported cow, bred by Lord Rokeby, and of the Dauncey Stock, he paid $700. For "Leda" (799), a daughter of "Jupiter" (93), and "Alphea" (171), he paid $640. For the bull "Sarpedon," a son of "Mercury" and "Europa," (own brother and sister—by "Jupiter," out of "Alphea,") $630. With these he bought "Eurotas," (2454), for $325. She was three years old, half sister to "Leda," and not so handsome.



THE FAMOUS JERSEY BUTTER COW "EUROTAS," (2,454).

Mr. Darling was disappointed in the performance of "Vesta." "Leda" proved with him an excellent butter cow, but was surpassed by her half-sister, which is the subject of this sketch. "Eurotas" is the daughter of "Rioter 2nd," a bull imported by Col. Hoe, bred by the Marquis of Bristol, and descended from the famous Dauncey herd, and "Europa," a daughter of "Jupiter," out of "Alphea," his full sister, they being by "Saturn," out of "Rhea," both imported by Col. Hoe, directly from the Island of Jersey. "Eurotas'" pedigree, so far as we know it, therefore runs thus (imported animals in Italics):

Eurotas 2454 { *Rioter 2d*, 469, bred by the Marquis of Bristol. Europa 179 { Jupiter 93 { *Saturn* 94, *Rhea* 166 } Alphea 171 { *Saturn* 94, *Rhea* 166 }

A short pedigree, but an instructive one. "Rioter 2nd," was no doubt a very well bred bull. He showed it in his appearance, and proves it in his get. "Europa" was the result of close in-breeding, a strong, vigorous, healthy animal, showing not the least evil results from such near couplings. She is still alive, breeding regularly, and was sold in May last, for a high price. "Rioter 2nd" was therefore an entire, and strong out-cross upon the "Alphea stock." The result to be expected, was that the offspring would possess those qualities, for which the parents had been bred, in an intensified degree. "Europa" was not a very extraordinary milker or butter maker, so far as known, (perhaps she has never had a first rate chance), but "Alphea" was, and so was "Rhea," doubtless also there were extraordinary milkers and butter yielders in "Rioter 2nd" line, for the Dauncey herd was bred with extraordinary care, both for color, and for excellence at the pail. "Eurotas" has been bred as a "winter cow," that is, to calve in the late autumn, or early winter, and though yielding well, does not come to her full flow, and yield of butter, until grass comes. This is remarkable, that a cow calving in December, should give more milk in May, than at any time during the winter, but so it is with "Eurotas" this year, and the same was true last year, though less accurately observed. The extraordinary production of butter of this cow, was not observed until about two years ago. She is not handsome, though well shaped; in fact, has the ideal form for a milch cow, not exaggerated. She was bought at a lower figure than the other cows, and for this reason great things were not looked for, and her milk went in with that of the common herd. How many cows are there whose milk is thus mixed with that of others, which, if kept by itself, might prove them the peers of even this wonderful cow?—A question which, though it cannot be answered, is not the less worth considering. Col. Hoe made to the writer an interesting statement of how he came to import Jerseys, and such Jerseys. His first importations of cattle, were two Shorthorns, and one Devon, all pure of course, and when showing his little Devon cow to Mr. Edward Faile, whose Devon herd was at that time the best in the country, he told him that if he wanted cows of a pure breed for "Brightside,"—his beautiful country place, now within the limits of the City of New York—he would advise Mr. Hoe to settle upon Jerseys, and that if he would import a heifer more than he wanted for himself, on his next trip, he would take one. This Mr. Hoe did, and being referred by a business friend in London, to Lawrence P. Fowler, the younger member of the firm of Michael Fowler & Son, he gave him a *carte blanche* order for half a dozen heifers and a young bull, to be selected with care, and shipped within six months. Richardson, and others, were importing Jerseys to New York, and limiting Mr. Fowler in his purchases to £5, or $25 a head, first cost. The six heifers and bull cost Col. Hoe between 18 and 19 guineas each, on an average, besides commissions. The famous animals of this importation were "Saturn," "Rhea," and "Edith." Mr. Faile was offered first choice, but declined it, and Col. Hoe's manager selected "Rhea," Mr. Faile taking "Edith." It was stock tracing to this cow "Edith" (167), which being crossed with bulls of the "Alphea Family," brought the high prices at Mr. Kellogg's recent combination sale.

The animals of Col. Hoe's importation, were without doubt much better selected, and worth

more than those which American breeders were at that time familiar with. Those which were selected in England, proved exceedingly good. They were the progeny of animals bought on the Island for English breeders, and selected doubtless in much the same way. The dealer taking time, making his selection, and paying the farmer's price. The rules of the Am. Jersey Cattle Club exclude these English bred animals now, unless they can be traced back, animal by animal, to the Island. Why this rule should prevail now, to exclude such animals as "Rioter 2nd," and "Vesta," we do not know, and certainly it seems unwise; and how it comes that these animals, tracing simply to the herds of well-known, reliable English breeders, were admitted to registration, does not appear.

"Eurotas'" Butter record has been repeatedly given for one week, namely, 22 lbs. 6 ounces. She has been tested this year since her calving in November—the test beginning Nov. 10th.—Between this date, and April 10th, she yielded 364 pounds, 15 ounces of butter, according to a statement published by Mr. P. C. Kellogg. From him we obtain the results to June 10th, as given herewith.

For five months ending	April 10	.....	364 lbs. 15 oz.
" the month	" May 10	.....	73 lbs. 13 oz.
" "	" June 10	.....	91 lbs. 9 oz.
So far, in seven months from calving			530 lbs. 5 oz.

This last monthly statement shows over three pounds of butter a day, for the seventh month after calving, and about the fifth of pregnancy. For the last day of the record, the amount of butter is estimated, being taken at half that of the two previous days. Churning is done on alternate days, that of the 9th and 10th being churned together.

The portrait we present, is copied from a painting by Mr. H. S. Kitteridge of this City, kindly loaned by Mr. P. C. Kellogg, and is a most accurate picture of the cow. It is hardly necessary to direct attention to her characteristic wedge shape, heavy at the rear, and thin and delicate forward, or to the enormous lacteal development, or indeed, to the roomy frame, and capacious abdomen, offering plenty of room for the digestive and assimilative apparatus, which must be in the very best order for such work as she is doing with ease and enjoyment all the time. "Eurotas" is of a brown color, lighter upon the legs and ridge of the back, where it approaches gray. She is an animal of excellent constitution, as shown by her form, and proved by her performance. She is thick through the breast, having a deep sound chest, good muscular development, and excellent under pinning. She will do well on a mountain pasture, in all weather, and no doubt equally well stall fed, and with little exercise.

Among the Farmers.—No. 55.

BY ONE OF THEM.

I was greatly distressed by the drouth this spring. My oats were set back wonderfully, though in good season, and as I have had rather poor luck in seeding with spring grain lately, I concluded to sow no grass-seed, but cut early and sow grass with turnips on the oat stubble.

The rag-weed and smart-weed made their appearance early among the oats and, of course, grew in spite of the dryness of the soil. I was led therefore to my first experiment in

Harrowing Growing Grain.

I used a Thomas' harrow, and the soil was like an ash heap. There had been corn on the ground last year, on part of it at least, and the stalks were not all covered and there were a few stones. Where the harrow teeth caught a corn-stalk destruction was wrought, apparently at least, and a loose clod or stone, or any thing that would drag, made havoc also. Where the harrow ran unimpeded it was bad enough. I could not sit on the harrow—that made things look too bad, but I did make two or three bouts for experiment sake. The Thomas' harrow, consisting, as it does, of three small harrows drawn abreast with a seat for the driver straddling over them, so that if the driver sits in the middle, the pressure of his weight will bear evenly upon all, is not handy to turn sharp corners with, and I found I could leave unharrowed half-moon shaped patches in the corners much easier than not. In a few cases I did so for the sake of comparison.

A sorrier looking field of oats I never saw than that was after once going over. I felt sick, and my man, Michael, held up his hands aghast.

We had one or two scorching days. The weeds, still very small, were killed where ever sufficiently disturbed. Then we had a fine shower, and the prostrate crop revived wonderfully. The result upon the weeds was so satisfactory, that after harrowing the potatoes just showing the rows well, in part of the same lot, I put the harrow on to the oats for the second time, still leaving some of the corner patches which were missed by the harrow the first time. The oats were six to ten inches high, measuring the full length of the leaves of some that were torn out. If I regarded it a piece of heroism to go on after the first bout at the first harrowing, it was doubly so the second time, and I hesitated seriously. One crop of weeds had been pretty well killed, another was just showing itself in the seed leaf, having sprung up after the shower, but the oats were so large, I argued, that these will never have a chance at light and air until after harvest, and then they will be plowed under. I resisted temptation and harrowed away. The crop looked worse than ever, and seemed to pick up very gradually during the excessively dry weather. We had rains after a while and it started and soon looked as if nothing had happened, and now, June 12th, is a pleasure to behold. I have never had a grain crop so free from weeds. Another year I will plan to harrow four times at least, especially if the weather be moist. In dry weather the weeds are most effectually killed, but more of the oats are dragged out too. I have heretofore reported the experiments of my neighbors in harrowing grain, but this is my own, and as the results tally well with those previously reported, I am well satisfied to inaugurate the new practice and follow it at least until we get to hoeing grain, which I well believe is superior practice.

Big Horses.

There is a remarkable change in the size of loads drawn in our principal cities, especially in Boston and New York. Boston has taken the lead in this matter, and her buyers have picked up blocky, heavy horses all over the country, while New York has been satisfied with highth. The leggy, sixteen to seventeen-hand brutes which we see here would not sell there, for they go all for weight. For steady draft, large slow moving teams do their work more economically than quick moving ones. It is far better to go once with a heavy load than twice with light ones. It is your comparatively small, quick going, nervous horses that balk. Sometimes a heavy horse will refuse to draw, but rarely.

At the French sale stables they put a horse—any draft horse they have to sell—before a dray with locked wheels and make him draw it, or at least do his "level best," scratching like a cat, the fire flying from the pavement, to show that he will not balk. Where they sell draft horses in this country they make them trot off to show their fine action and style. But we are learning fast, the Percheron, Norman, and Clydesdale stallions that come over on almost every steamer, are fast making a change and the trucks are getting larger every season. Now we need better pavements and better country roads, so that we can use the enormous power of these large horses to the best advantage. I was speaking about them to Thomas Galbraith, formerly manager for Mr. Thorne at the time he had the famous Duchess Herd, and he told this story about

London Truck Horses.

Mr. Galbraith took two large bulls, "Lord Oxford," and one of the "Thorndale Dukes," I believe, out to England for the purchaser. He landed in London and wanted to get them across the city to a railway station, distant about three miles. Rather than lead them over on the always slippery pavements he concluded to put them on one of the low-hung truck, or platform, wagons which they use for moving heavy freight, like molasses and sugar hogsheads. The owner of a line of one-horse vehicles of this character on a stand, named 14 shillings ($3.50) as the price he would let him have a truck for. "Is not that a high price?"—"No, it's right, they're good horses," said the truck owner.—"Well," said Galbraith, "I will give them a pretty good load."—"See here," said the other, "if you mean to put over *three tons* (6,720 pounds) behind one of my horses for that trip you can't have them at all."—When afterwards Galbraith came along with the two bulls, one weighing 2,400, and the other 2,200, standing together on the platform drawn by one horse, he was greeted: "Ha-ha! Is that what you call a 'pretty good load'?"

We will come to this one of these days in this country, but we must have better roads, heavier horses and stronger trucks. It is rare to see over three tons behind a pair of horses in New York. Six-ton loads are certainly as frequently seen in Liverpool and London as loads of half the weight are here.

Feed for Butter.

At this time when so much attention is given to butter production, we are naturally on the lookout for fodder that will improve both the quantity and the quality of that product. Corn fodder holds a deservedly high place as milk-producing food, but the quality of the milk is thin unless meal be added to the stalks, or fed in connection with them.

Mr. L. W. Ledyard, of Cazenovia, Madison Co., N. Y., has a fine herd of Channel Island cows, both Jerseys and Guernseys, and finds that Golden Millet fed to his cows produces a marked change in the quality of the butter and probably also in the quantity. The butter comes much firmer and of a more granular and waxy texture. I did not have the opportunity to question Mr. L. very closely, so as to learn his full experience. He has, however, established the fact to his own satisfaction that this is the best food he can give his cows to secure the best *quality* of butter. I would have been glad to know how Hungarian or other millets compared with it. The comparison in Mr. Ledyard's mind was clearly as between hay and corn fodder, and Golden Millet. Wheat bran is a milk-making food, but it does not increase the butter very much. Cabbages and turnip tops increase both the milk and the butter, but do not improve the flavor. Parsnips and carrots certainly and largely increase both the quantity of the milk and yield of butter, and improve the quality of the latter. Sugar beets and mangels are among the best milk producing articles of bovine diet, and the quality does not suffer so far as I know. How important it is that we should have *experiments*, yielding definite and valuable results. I believe the New York Legislature passed a bill for

An Experiment Station

at the last session. Efforts had been made before for an appropriation for such an end, and now we presume we may give the credit to the known interest of the Governor in the institution named in honor of his father, and which in the popular mind has always been an Agricultural College. The success of such an "Experiment Station" does not depend upon appropriations, though money is always necessary. It too often happens that money easily obtained, as by vote of a Legislature, or Act of Congress, is easily spent, and that without accomplishing the ends intended. When such an institution *grows by its own necessities*, under judicious management, it is sure to accomplish great good. There are hundreds of problems presenting themselves to the thinking farmer, and student of agriculture, which can only be answered on the farm, in the feeding stalls, or pig pens, in the dairy or in some other practical way; where the land and the manure heap, the live stock and their products, the chemical laboratory and microscope, and the whole range of philosophical instruments from rain-gauges to lactometers, in one way or another, in good earnest hands, coöperate to bring about valuable results.

Preparation for Fall Crops.—There is the good and the poor way of preparing the ground for the reception of the seed of the crops sown in the fall. The large average yield of the wheat crop of England is due in a great measure to the great care

taken to prepare the ground for the best growth of the wheat plant before the grain is sown. The fields that are imperfectly plowed and indifferently harrowed are far too common with us, and until the soil is made deep and mellow by thorough tillage, all the manure and artificial fertilizers we may apply will not bring the yield of our fall sown crops to the most profitable point. A little extra work in preparation will many times bring a large margin of profit when it comes to gather the harvest.

Tenant Farming.

In the Eastern and Middle States there are thousands of farmers of small means who either can not, or do not wish to, "go West." These must occupy rented farms, and, in many cases, be content to do so for a long term of years. Under the present revival of interest in agriculture, and as methods of cultivation grow more elaborate and expensive, the tendency will probably be towards an increase of this class; and, therefore, much of the farming of the future, in the section named, will depend for its success on a satisfactory working of the landlord and tenant system in some form. Why should not the co-operation involved in working a farm "on shares," for instance, be as satisfactory and profitable to both parties, on an average, as other partnership? I assume that it is not generally a success, that being the prevailing impression, and it becomes important to know whether the reasons for failure may not be removable. Why should not tenant farming with us do, not only as well for both owner and farmer as is usual in England, but *better*, because of our superior advantages in climate, markets, etc.?

There are large amounts of capital in the East looking in vain for investment at from four to six per cent. There are also thousands of farms within easy reach of our seaboard cities, that instead of being *worked* are "muxed," as a Jersey friend of mine puts it, the condition probably standing at its worst, as a rule, where the occupant is a tenant. Now, is this situation without remedy? Why would it not pay for men who have capital and some knowledge of, and taste for, farming (although in other business), to buy these farms,—they are always for sale—rent to a *first-class* farmer "on shares," spend some money in improving the land, and "push things" generally? I say *on shares*,

Fig. 1.—DYNAMOMETER, OR FORCE-MEASURER.

because, under the present condition of farming, probably, with a fixed money rent, the temptation would be for the owner to neglect and for the farmer to "skin" the land. It seems reasonable that such a *double team* should be able to do much more with a farm than any one party of moderate means. I should be glad to see some comments and criticisms on these points. If it can be shown that much of the capital now made a foot-ball of in

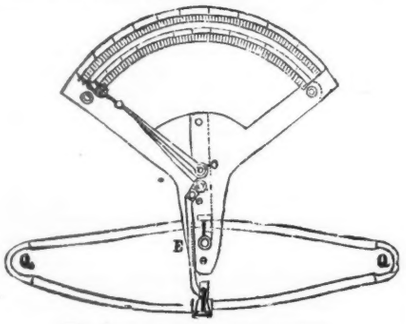


Fig. 2.—ELLIPTIC DYNAMOMETER.

our large cities, can be profitably put against the skill and labor of farmers who have means to *properly stock and work* a farm, but not sufficient to buy it, I think a long step forward will have been made in the agriculture of the Eastern and Middle States.

PHILADELPHIA.

Dynamometers, or Force Measurers.

The working of all machinery requires power or force, and it is of great importance to be able to measure this force. To this end Dynamometers have been constructed. The simplest form of the power or force-measurers—for that is the meaning of their name—is shown in figure 1, and consists of a coiled spring encased in *b*, bearing an index, *a*, which moves along a graduated scale as the coil is extended. One end of the Dynamometer is fastened to the object upon which the force acts, as a plow or mowing machine, and the other is attached to the source of the power or force; the horse, ox, or steam engine. It is evident that this instrument in its simplest form is only a very strong and heavy spring balance, and is used for "weighing" the force exerted by a horse, for example, instead of the *pull* of gravity as the balance does in simple weighing. The amount of force to draw a plow, for example, is shown by the place the index takes upon the scale. A second form of Dynamometer is shown in figure 2. The ends of the oval spring, *Q*, *Q*, are attached to the draught and object drawn. The greater the force exerted the nearer the sides of the spring will be brought together, and the amount of power is shown by the pointer, which is moved along the scale by the rod, *E*, pressing on the base of the pointer. A third form of Dynamometer is shown in figure 3, bringing the spring, *S*, *S*, and the graduated scale near together, thus making the instrument more compact. In the first and second forms there is a great inconvenience and lack of accuracy arising from the rapid vibrations of the index caused by the unequal resistance of the object at different moments, and the unsteady motion of the horses. The trouble is removed in the third kind, by attaching to one end of the index, *E*, a piston which works in a cylinder, *C*, filled with oil. The piston has a small hole through which the oil passes from one side to the other as the draught varies and causes the piston to move, and does away with any sudden or jerking motion. A more accurate instrument is the Self-recording Dynamometer, which marks all the vibrations upon a strip of blank paper by means of a pencil fixed on the index. The paper is moved along slowly by being placed on two rollers, one of which unwinds the paper upon the other. The rollers which carry the paper are turned by a wheel running on the ground, and giving its motion to the rollers through an endless chain, and working the cogwheel of an endless screw. A Self-recording Dynamometer is shown in figure 4, and a portion of the paper showing the record is given in figure 5; the short lines, *a*, *b*, show the quick changes of the index. With this attachment a permanent register is made of the force required for the working of different implements, and with an accuracy beyond dispute.

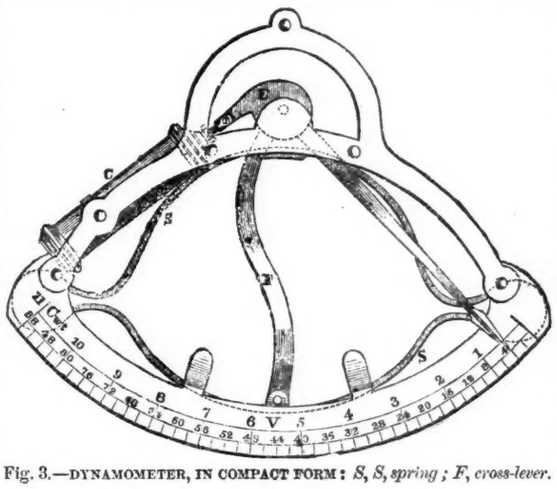


Fig. 3.—DYNAMOMETER, IN COMPACT FORM: *S*, *S*, *spring*; *F*, *cross-lever*.

The importance of a *force test* in deciding upon the merits of a plow, mowing machine, etc., is greater than it might seem at first sight. Two plows may do the same work, and do it equally well; but the Dynamometer may show that one requires a fourth more force than the other. There would be a great saving in such a case in buying the plow with the lighter draught. Figure 6 is the Dynamometer now much in use; it is strikingly simple in its construction, as the illustration shows, and made by Fairbanks & Co., of "Standard Scale" renown. These instruments range in capacity from 600 to 2,000 lbs. We do not claim that the measurement of the force by the Dynamometer is perfectly accurate, but it is acknowledged as an instrument of great value in testing the draught of machines, and to its use in the various trials of mowers, reapers, plows, etc., at fairs and elsewhere, we are doubtless indebted to the great improvements in lessening the draught of farm implements. When the test is made with great care, and the trials are of sufficient length and variety, there is no other method equal to that of the Dynamometer.

Autumn Seeding to Grass.—It is the general custom to seed to grass after some grain crop, as wheat, oats, or barley; but when it is desired to get a field into grass in the quickest possible time, this practice need not be followed. Grass and clover seed may be sown this month with the probability of success. This is not without its risks; a dry spell may prevent the seed from germinating until the season of growth is pretty well passed, when only a poor "catch" will be obtained. A shelter to the young grass and clover plants that will protect them from the hot sun, and at the same time prevent the soil from becoming too dry, is very desirable. For this purpose no crop is better adapted than white turnips, which grow quickly, and with their broad leaves make a protection to the grass seed and young plants, and shade for the soil. For the good of the grass it is not best to have the turnips grow very large, otherwise there may be danger from smothering; but a fair yield of turnips may be secured with no danger to the grass. The turnips should be pulled early, at which time the clover will be well started, and will soon thicken up and cover the ground before winter sets in. With a good dressing of manure, an early start may be secured in the spring, and a good crop of hay or a fine pasture results. When the soil is continuously moist, deep and mellow,

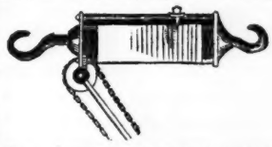


Fig. 4.—SELF-RECORDING DYNAMOMETER.

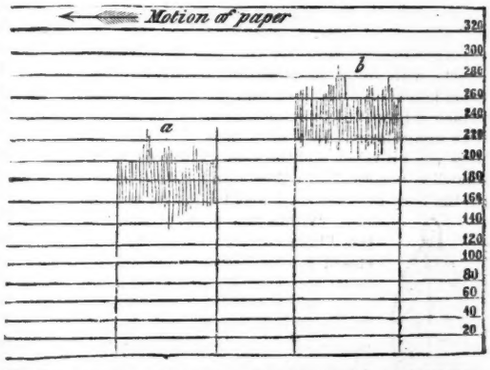


Fig. 5.—MARKINGS OF THE SELF-RECORDING DYNAMOMETER.

Fig. 6.

the grass seed may be sown alone; but in most cases it is safer to provide a shading crop, like the turnips, besides a good return for the preparation of the soil is at once obtained in a valuable crop of roots for feeding the stock in autumn or early winter.

The Sheep Rot, or Liver Fluke.

The wet season of 1879, in England, has been followed by an unusually fatal out-break of the "Rot" among sheep. At five other dates during the present century, wet seasons have preceded visitations of this very destructive disease, namely: in 1808, 1817, 1824, 1830, and 1853. The association in time of the prevalence of the "Rot," with a season of unusual rain, is enough to suggest that there may be some direct relation between the two. Through investigations of such naturalists as Dr. Cobbold, Von Siebold, and others, the precise nature of the Sheep Rot has been discovered, and the relation between the wet season, and the unusual abundance of the disease established. The "Rot" is caused by a parasitic animal known as *Distoma hepaticum*, which takes up its abode in the ducts in, and leading to, the liver, and hence popularly called Liver Fluke. The Fluke is a sucking worm resembling the leech,

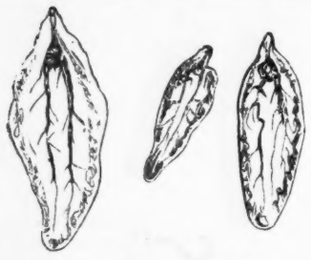


Fig. 1.—THE FLUKE, FULL SIZE.

of a flat, oval shape, thick and rounded at one end, and provided with a sucker or mouth. The full-grown parasites are shown, separated from the liver, in fig. 1, and small ones, but partly grown, are represented in fig. 2. These little animals are quite highly organized, being provided with a digestive apparatus, and a branched intestinal canal, fig. 3, and a system of veins and blood vessels, shown in fig. 4. The life-history of this parasite, about which in former years there was much conjecture, and even dispute, is now thoroughly understood. The mature Fluke, as found in the sheep's liver, is the end of a series of transformations, which we will trace from the egg of the perfect Fluke, through its changes, around to the full grown Fluke again. The egg, after leaving the Fluke, finds its way into the intestines of the sheep, and is expelled with its excrement. If the egg falls upon dry soil, and no water reaches it, it soon perishes; if, however, the egg meets with sufficient moisture, it soon hatches into a small embryo, which is propelled by minute hair-like appendages. In a short time legs are provided, and the young Fluke becomes a crawling "worm." In this form it gains entrance to the body of some snail, and begins its parasitic life. Within the flesh of the snail, the Fluke becomes encysted, or enclosed in a kind of sac, in which state *buds* are formed, which, breaking away, leave the snail, and become like small tadpoles, moving about by means of their long slender tails. These again enter the snails and become parasitic, and afterwards encysted for the second time. In this pupa, or resting state, the Fluke is conveyed from the grasses, upon which the sheep feeds, into the stomach of the sheep, and once there, the final leech-like state of the parasite is quickly assumed, and finding its way into the gall ducts of the liver, it reaches its last state, and does its most destructive work. With this sketch of the development of the Fluke, it is easy to understand the relation between a wet season, and the prevalence of the "Rot" in the season following. The hatching of

Fig. 2.

Fig. 3.

the egg of the Fluke is dependent upon the presence of a considerable amount of moisture when it is passed from the sheep and falls to the ground. The young Fluke afterwards must enter the snail, but the snail lives only in water, or in very moist localities. In wet seasons, the number of such localities is extended, the number of eggs that hatch is greatly increased, as is the number of snails, bearing the parasite in its first stages. The Fluke often occurs in sheep, without its presence being suspected. It is only when it is sufficiently abundant to produce "Rot," that attention is called to it. In the first stages of the disease, there is an increased appetite, and a tendency to fatten. This has been taken advantage of by the English feeders, who it is said have purposely "Rotted" their sheep, in hastening them on to the shambles. This unnatural excitement of the first stages of the disease, is soon followed by a falling away in condition; the color of the eye, instead of its usual brightness, becomes tallowy in appearance, the skin becomes wet, and the wool loose. As the disease advances, dropsy develops, and a watery tumor appears below the lower jaw; the whole system becomes deranged, and in a short time the sheep is the pitiable object shown in figure 5. This engraving of a sheep in the last stages of "Rot," as well as those of the Fluke, are borrowed from that excellent and practical work, Stewart's "Shepherd's Manual." When an animal reaches this condition, the end soon follows, and the sheep dies in a state of rottenness throughout.

Fig. 4.

Remedy.—Whenever the Flukes have found their way into the liver of the sheep in any considerable numbers, there is no practical way of removing them—death must shortly follow. Sheep may live, and even thrive when infested with Flukes to a slight extent: but the shepherd should always be on his guard against them. In the present case,

Fig. 5.—SHEEP AFFECTED WITH FLUKE.

the ounce of prevention is worth far more than the pound of cure, and therefore the flocks should be kept from feeding upon low lands, and never allowed to drink from pools of stagnant water surrounded by dense vegetation, as in such places the fluke-bearing snails abound. The Liver Rot is in one sense very much a question of drainage.—A recent article in the "Agricultural Gazette" (London) on this subject states that the "tender Merino sheep first falls a victim, while the Lincolns, or still stronger cross-bred, stand the best." The Fluke has prevailed to some extent in this country; there has been a recent outbreak of it in Oregon, and we should profit by the lesson of the very serious loss abroad, and strive to keep our flocks from the pest, especially in seasons of, and those following, unusual rains, by guarding them from feeding in low lands where the infested snails may abound.

Curing Fodder Corn.—The chief drawback with fodder corn is the difficulty of properly curing such a heavy crop of succulent green herbage. When it is remembered that 30 tons per acre has been reached, the problem of curing is seen to be an important one. The French system of ensilage may in time come to the rescue and provide a method of preservation that retains the fodder in its green state; but the introduction of such a system must be slow, and until then the old method of dry preservation must be practiced. The putting together of large quantities of half-cured stalks must be abandoned, as it has been the greatest source of loss to those who have grown fodder corn. The mow should be thoroughly ventilated by shafts passing up through its center, and when the fodder is put in stacks, they should be of small size, holding but a few tons, and better still, provided with a shaft, made of a few boards, in the middle.

Hints and Helps for Farmers.

A CHICKEN COOP.—Mr. L. Prentice, Leavenworth Co., Kansas, sends a sketch and description of a chicken coop, which is given in figure 1. The frame is made of pine. Three of the sills are one inch thick and three inches wide, the front one being one inch square, and let into the lower corners of the side sills. The ridge pole is one inch square,

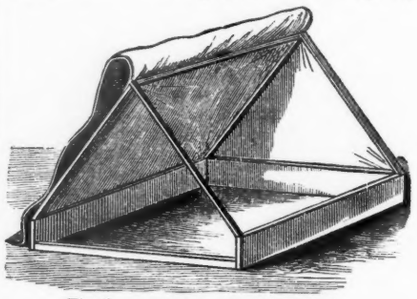


Fig. 1.—A COTTON CHICKEN COOP.

and the rafters are made of lath. The frame is covered with common cotton domestic, put on with small tacks. Five yards of domestic will cover four coops, and last two or three years if housed when not in use. Such a covering excludes the rain, snow, and wind, yet the sunlight passes through, giving warmth and light. Mr. L. writes: "We have never lost a chicken from a rain or snow storm while in these coops, and we use no other. A group of them resembles a camp-meeting ground. When necessary to close up the coop, as at night, we set up a board in front, or set two or more together, thus closing each other."

HEN'S NESTS FROM BARRELS.—Mr. L. W. Grayson, Jefferson Co., Miss., sends his plan of making nests from barrels as follows: Saw the barrel in halves through the line, *A*, *A*, figure 2, and then nail the hoops on to the staves securely. Saw the hoops through the line, *B*, *B*, and each part, when provided with a bottom, *C*, and cleats, *D*, *D*, to keep it in place, makes a substantial waterproof nest that can be fastened to a post or the side of a building. The nest complete, is shown in figure 3, and is attached to the base of a post.

2.—CUTTING THE BARREL.

Barn-Yards.—For good reasons the barn-yard is one of the most important features of a farm, and its proper keeping should be constantly in

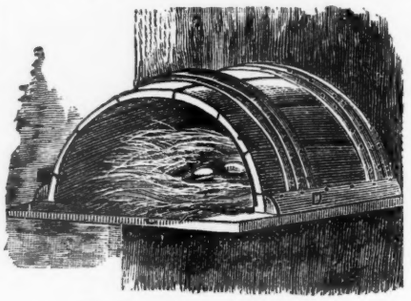


Fig. 3.—THE COMPLETE NEST.

mind. The manure here saved or lost, in a great measure, determines the success or failure of all other farm operations. The chief points to be observed are cleanliness and healthfulness of the animals there confined, and the saving of all the ma-

nure that is produced by them. Both of these ends are accomplished by having enough bedding or litter to absorb all the moisture and cover the droppings. The yard should be so constructed that it is not washed by the dashing rains of summer, but being comparatively level the litter holds the excess of moisture. In this way a good supply of the best manure is made. The straw stacks that often stand by themselves in the open field should furnish the necessary litter for the barn-yard, instead of slowly rotting away where they stand.

A Barn-Door Holder.

A simple apparatus for holding a swinging barn-door open at any point, was described to us in

A CHEAP BARN-DOOR HOLDER.

Livingston Co., N. Y. (We did not note down the name of the contriver—an aged farmer, who busies himself with making new devices for ordinary work.) This is a stick, 2 to 3 feet long, with an iron ring or thimble around the lower end, to prevent splitting. A sharpened iron rod of any desired length is driven in. The other end is supplied with a hook to catch into a staple driven into the door. When not in use, it is turned horizontally, and the lower end rests on a spike or wooden pin, as shown by the dotted line in the engraved sketch. A similar stick on the other side could be used, if it is desired to hold the door only partly open, instead of swinging it back against the side of the barn, or against a stray post or other object.

A Rustic Seat, Quickly Made.

Among Mr. Judd's "Notes by the Way," we find a brief sketch of a Rustic Seat he saw on the shaded grass-plot around the residence at the farm of Wm. R. McNair, near Lima, Livingston Co., N. Y.—One end of a Linden (Basswood) log was found to be too knotty and otherwise unfit for sawing into boards. A piece 28 or 30 inches long was cut off with a cross-cut saw, for fuel. One of the daughters found a better use for it. First, at 15 inches from the lower end, the block was cut more than half through with a cross-cut saw. Then with an axe, and finally with a chisel, the seat portion was split and cut out, as shown in the sketch. All this was accomplished in half an hour or so during the nooning hour, by a couple of the farm hands. The saw-cut under the arms will not affect the solidity of the arms. This might be filled with a bit of putty, or a mixture of dry clay and oil, to keep out water and prevent future decay. A small gutter somewhere in the seat, to carry out rain when falling upon it, would be useful. Such seats as these, quickly made at no cost, may be quite freely provided for door yards, fruit yards, shady corners, etc.

A CHEAP RUSTIC SEAT.

The 17-Year Locust, or Cicada.—This destructive insect, which, in the same locality, makes its appearance every seventeenth year, is now exciting attention on a number of places in the United States. This brief description of the Locust is given in answer to the questions concerning it, sent to the *American Agriculturist*. The mature insect resembles the Harvest-fly, but its head is narrower, with red eyes and large wings the veins of which are orange red. The females are provided with powerful piercers, with which they make narrow grooves in the twigs and small branches of forest and fruit trees, and in which they deposit about 20 eggs, arranged in a double row. After thus laying 400 to 500 eggs, the insect dies. It is this cutting into the branches that is the source of damage done by the Cicada, as it weakens the limbs, causing many of them to break away from the tree during storms, etc. The males only are provided with a tightly stretched membrane, like a drum, which when made to vibrate produces the sound that, when coming from a large number, suggests the rumbling or dull, obscure noise of a threshing machine in operation at a distance. The eggs hatch in about six weeks, and soon after the larvæ or grubs drop to the ground. The larva is white and by the aid of its lobster-like claws burrows at once into the earth, where they feed on the roots of plants, during their long unnoticed subterranean existence of 17 years. When its "time is up," so to speak, the grub comes near the surface of the soil, and remains for a number of days in the inactive pupa state; after a while, the perfect insect comes forth through a rent in the back of the pupa-skin, and the circle of life of the Cicada is complete. A new deposit of eggs soon follows, branches are again destroyed, the dull drumming fills the land, and a second seventeen years of underground life is entered upon.

Wood and Cement Water Pipes.

Mr. "F. S.," Brooklyn, N. Y., sends sketches and descriptions of cheap home-made water pipes

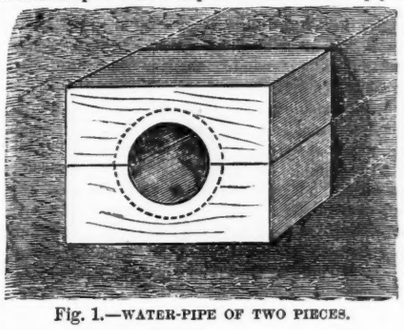


Fig. 1.—WATER-PIPE OF TWO PIECES.

to be enclosed in hydraulic cement. A wooden pipe is made of two strips of pine plank, 1½ inch thick by 4 inches in width; these are hollowed out in the center by a molding machine and the two pieces joined together to make a tube, as shown in cross-section in figure 1. The strips should be

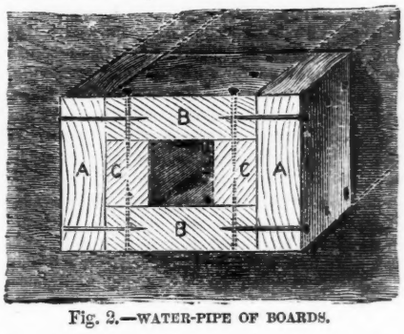


Fig. 2.—WATER-PIPE OF BOARDS.

about 12 feet in length, their ends are cut square, and they are put together joined end to end, by means of a ring of galvanized sheet iron—a ferule of such iron as stove pipes are made of. These ferules are three inches long; one of them is placed between the ends of two sections of plank pipe, which are driven together, when the ring will have the position shown by the dotted ring in figure 1. In this way a secure water-tight joint is made. The two halves of the pipe are fastened together by screws placed six inches apart. The pipe is now ready for its encasement of cement, which should be made of one part cement, two parts clean sand, and two or three parts small gravel stones. The pipe should be laid below the frost line and after being placed in the ditch the concrete as it is prepared should be put around it.

Another kind of pipe is made of inch pine strips joined as shown in figure 2. First nail together the

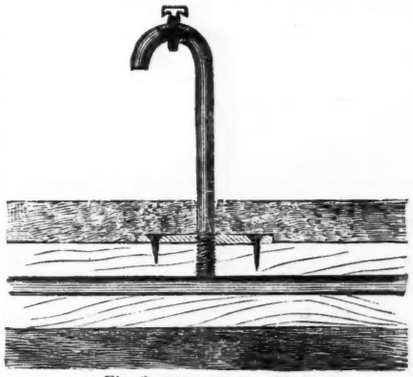


Fig. 3.—OUTLET TO PIPE.

strips *B, B*, and *C, C*, after which the boards *A, A*, are nailed on as shown in the figure. These strips give strength to the pipe; the nails, six inches apart, being long and passing well into the strips *B, B*. The pipe thus made which may have a "throat" 1½ to 2 inches in diameter is afterwards encased in the cement concrete, the same as pipe in figure 1. An outlet for the water from the pipe may be made as shown in figure 3. A piece of iron tubing of the length required, with a bend at the upper end is threaded at the bottom and made to screw into an iron plate, fig. 4, fastened upon the pipe at the point of outflow, below which a hole is bored through the side of the pipe; in fact the tube is screwed through both the iron plate and the wood of the pipe. An ordinary faucet may be made of the upper end of the iron tube.

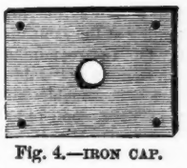


Fig. 4.—IRON CAP.

The Lettuce Mildew.—Early last spring the complaints from the loss of the crop for forced lettuce, were so frequent, that we were induced to send out a circular asking for further information upon this important matter. The results of this investigation were published in an illustrated article in the *American Agriculturist* for April last, p. 148. Since that time other answers have come in, and with them the information that the trouble is much more wide-spread than we were led to infer from the replies up to the time of writing the April article. We there stated that: "From the responses to these questions, we infer that the Lettuce Disease is at present confined to the Atlantic States." Responses from the South, even so far as Southern Texas, inform us of its ravages in that direction, and a letter now before us states that the region of the Great Lakes has not escaped; in fact, the growers of early forced lettuce in Central Michigan, for example, have had, in some cases, their entire crop almost completely destroyed. There is no doubt that the disease is a fungus, and the important question is, how to meet it, or, better still, how to prevent its coming upon the early lettuce. With the closely related mildew upon the grape-vine, Flowers of Sulphur dusted on at intervals has been found an effectual remedy; but with the lettuce plant we are met by the difficulty that the foliage is the portion eaten, and the dusting of it with Sulphur would not improve its taste or healthfulness; in fact, without thorough washing, it would not be marketable. It appears evident that just those conditions that produce the most vigorous growth of the lettuce plant, namely: rich soil, heat, abundant moisture, etc., are those best for the fungus.

The Family Cow—How to Keep Her.

[THIRD PRIZE ESSAY.]

For several years I had been experimenting on a small scale in soiling cattle, my area of land, however, was exceedingly limited, being only a portion of the kitchen garden of a city residence, but my success was, even in this small way, so satisfactory, that I determined at some future day to try it on a more extensive scale. My reading and experience convinced me, that in our favored southern climate,

A Half Acre of Land,

intelligently cultivated, would produce a supply of food amply sufficient to support one cow throughout the year, and circumstances favoring, I determined to try the experiment. In April, 1876, I became owner of a lot 250 feet long by 120 wide in the rear of my premises—the greater portion having been used as a grass plot for a horse. I immediately began by fencing off a portion 120 feet by 200, running a wagon-way 8 feet wide down the center, which, with the space occupied by the stable (say 20 by 30 feet), left nearly 22,000 feet, or within a fraction of half an acre, for actual cultivation.

The Land was a Sandy Loam,

covered with a thick sod of Bermuda and other grasses. Years before it had been cultivated as a market garden, but latterly given up to grass; it sloped to the south sufficiently to favor good drainage. In and around the stable was a goodly lot of manure, which, during April, was spread upon the land—some 40 cart loads. On the 20th of April, the land was thoroughly plowed with a two-horse turning-plow, and harrowed until finely pulverized. On May 1st, I planted one half of this land in

Our Common Southern Field Corn,

in drills two feet apart, with the grains about one inch apart. The rows were lengthwise, to render after cultivation more convenient. On May 4th, sugar corn was put in one-half of the remainder, planting at the same distance as the larger variety. May 6th, the remaining fourth was sown heavily with German or "Golden" Millet, in drills 12 inches apart. Seasonable showers, followed by warm sunny days, soon produced a vigorous and rapid growth. On May 15th, a Thomas' harrow was run over the first planted corn, and six days after over the second planting, and over the millet. On May 30th, the corn was plowed, followed by a good hoeing. A fortnight later, a second and last hoeing was given. The millet was also hoed twice, after which the growth effectually shaded the ground, and thus prevented the growth of weeds. In the meantime I had repaired the stable, and had a large door cut into the side next to the original lot, and made

A Stall for our pet Jersey Cow.

The floor was made of cypress plank, 3 inches thick, and sloped very slightly from the manger. By actual measurement of the space occupied by the cow—giving just room for her hind feet to clear the same, a trough, eight inches deep, and fifteen wide, was made to receive the urine and droppings. The stall was 4½ feet wide, the sides coming only half the length of the cow, and just her hight. The manger extended entirely across the stall, was 12 inches wide at the bottom, and 18 at the top, and 12 deep, the bottom being 12 inches above the floor. The fastening consisted of a ½-iron rod, passing from one side of the stall to the other, along the center of the manger, and one inch from it. On this rod was a ring, to which was attached a short chain that ended in a snap-catch, to attach to a ring fastened to the head-stall,—the head-stall being made of good, broad leather. Usually, in turning the cow out in the morning, the head-stall was unbuckled and left in the stable; to fasten again was but a moment's work. By this arrangement the cow had full liberty to move her head, without any possibility of getting fastened by the halter. The bottom of this manger was made of slats, one half inch apart, so that no dirt could collect. For feeding wet messes, there was a box made to fit one end of the manger, which could be removed to be washed without trouble. With plenty of sawdust, costing only the hauling,

Perfect Comfort and Perfect Cleanliness

were matters of course. Attached to the stable, but on my original premises, was a lot 50 by 50 feet, where, during pleasant weather, the cow was turned, but free to go in and out of her stall at pleasure. In this lot was a trough, connected with the pump, where a supply of clean and fresh water was always kept. Daily this trough was emptied and thoroughly cleaned. A cow may eat dirty feed occasionally, but see to it that the water she drinks is pure. Unless this is attended to, her milk is unfit for human food. The manure trough being supplied with sawdust, the urine, as well as the droppings, were saved and removed daily to a covered shed located in one corner of the lot, where it was kept moist, and worked over occasionally. Our Jersey was due with her second calf about the 20th of June, but was still giving milk in April and May. Her feed from May 1st to the 15th of June, was the run of a common pasture, with a mess twice daily of wheat bran and corn meal, with hay. On the 1st of June she was dried up for a brief resting spell. On June 15th we began cutting the sugar corn, now waist high. This was run through a cutter (making cuts ¾ of an inch), and fed to her three times a day, first sprinkling two quarts of wheat bran over the corn, and continuing the hay feed twice a day. At the same time

She was taken from the Pasture,

not to go on again until this experiment was finished. On the 22d of June her udder was so distended, it was deemed prudent to relieve it by milking. This was done twice a day for three days. Here, at the South, there is a foolish prejudice against doing this, the belief being strong among the ignorant classes that it will cause the death of the coming calf. In some instances I have found it necessary to relieve the udder daily for a week before calving; I never knew any evil to result. On the morning of June 25th there was a fine heifer calf beside her. As soon as convenient the cow was milked thoroughly, and a bucket of water, with one quart each of corn meal and wheat bran stirred in, and a pinch of salt, was given her, and *nothing else* except water for 24 hours. At evening she was again milked to the last drop, and the calf left with her during the night. Next morning a small feed of three quarts of wheat bran, and one quart of corn meal, made pretty wet, was given her, and her udder again thoroughly emptied. After milking, a small feed of hay was given, and a pail of water placed near. The calf was separated from her, but within sight. At mid-day the calf was allowed to take her fill, and afterwards the udder stripped. At evening, as the cow seemed to be free from any indications of fever, or inflamed bag, she was given a full mess of corn meal, wheat bran, cotton-seed meal, and hay. Her calf took her supper, and the udder was again stripped; that night the calf was taken from her, never to suck again, as fresh milk in a city was too valuable to feed to even a registered Jersey. Having, in years past, lost several very fine cows from

Over-feeding and Under-milking,

at calving time, I cannot urge too strongly what Col. Geo. E. Waring calls "high starvation" at this critical period in a cow's life. If a cow has been decently cared for up to the day of calving, she needs nothing but rest, quiet, and a light mash,—warm in cold weather—for 24 hours, and then but light feeding for two or three days. But be sure to *empty her udder completely* at least twice every 24 hours, and if the cow is a deep milker, then three times; with this treatment, the feed can be gradually increased to all that she will eat up clean. It is a very easy thing to teach a calf to drink milk, when one has seen the thing done. Next morning this calf was impatient for her mess of warm milk, so, after milking her dam, I took a shallow pan, and putting two quarts of milk into it, proceeded to give the first lesson in a calf's life, of doing without a mother. The process is very simple, you merely wet the first and second fingers of the left hand with milk, and place them in the calf's mouth, to give her a taste of what is in store. Repeat this a few times, then gradually draw the pan nearer her mouth with your right hand, using your left as above. When the calf permits your two fingers to enter her mouth, raise the pan so that your left hand will be immersed, and the calf, by suction, will draw the milk up between the fingers. At mid-day, another mess of milk, and a second lesson was given; at evening a third. Next morning the process was repeated, but in this instance she did not need the fingers to guide her to what was good for her, she readily accepted the situation, and stuck her pretty nose into the warm milk, which rapidly disappeared to where it would do the most good. But with milk worth ten cents per quart, and cream seven times as much, it did not "pay" to use six quarts daily of rich Jersey milk in this way, so, after a fortnight's supply of the raw material,

The Feed was gradually Changed

to sweet skim milk for two weeks, and then substituting hay-tea, the milk ration was cut down to two quarts daily. Beginning with a tablespoonful of cotton-seed meal, thoroughly mixed with the feed, the quantity was increased in ten days to one pint daily. At one month old, she was gradually taught to eat bran by stirring it in her food.

The preparation of hay-tea is very simple. Nice hay was run through a cutter, and taking an ordinary two-gallon pailful, boiling water was poured upon it, then covered and allowed to steep for 10 or 12 hours. It makes a most excellent food, and calves thrive upon it. The most stylish and vigorous calf I ever saw, was raised upon hay-tea, with bran and cotton-seed meal as here described. I enter thus fully into the best manner of raising a calf without its mother, for the especial benefit of my southern readers, where the thriftless habit of allowing the calf to suck its dam, oftentimes until a year old, so generally prevails. In this instance the little heifer got along nicely until two months old, when an aggravated attack of scours set in, but by timely doses of laudanum in a mess of warm gruel, poured down her throat twice a day, for three days, a cure was effected. In ordinary cases of scours, a change to dry food will correct it, but it is well to watch and not permit the disease to become seated. A few years ago, a very valuable young Jersey heifer, received from the vicinity of Philadelphia, was taken in this way, while undergoing the usual course of acclimation incident to northern cattle brought south, and the simpler treatment proving of no effect, I gave injections twice a day of rice-water and laudanum, besides drenching her with corn-gruel and laudanum. This was kept up for ten days, but we carried her safely through, and her present value amply compensates for the time and trouble expended. But let us return to the cow. On the morning of June 29th, we began giving her

A Fair Feed of Green Corn,

adding to it wheat bran, and cotton-seed meal. On July 2d she was fed all the corn stalks she would eat, continuing to add bran and cotton meal, giving four quarts of the former and two of the latter, and this was her daily food, including the German Millet, treated in the same way, until September. The green food was given three times a day, but the bran and cotton meal added only morning and night. Occasionally a day's supply was cut early in the morning, and allowed to wilt before feeding, but in this, as well as in many other matters, my man-of-all-work did as circumstances permitted. His various duties about the place gave him but little time to reduce to an exact system the care and feed of a cow. She had a good stable, and got plenty to eat; received daily a good brushing, and was treated kindly. Yet, she was *our* servant (and a most faithful one she was), and we were not her's, or slaves to any arbitrary clock-work regularity. She was fed and milked at regular intervals, but beyond this it was not always convenient to have regular hours at her stable. We did not keep her as an exhibition of a model cow in a model stable, and to exemplify a model system of care and keep. Like thousands all over the land, we

Kept Her Simply for the Profit

she yielded, in the way of milk and butter. It has often struck me, in reading the many suggestions and hints about how to keep a cow, to be found in our agricultural and live-stock journals, that were they all literally carried into practical operation, it

would take the entire time of two able-bodied men to attend one animal—one to be always on hand during the day, the other to serve at night. *Now common sense is a good thing, even when applied to the management of cows, and my experience convinces me that the average man wishes to know only the cheapest and easiest way to have an abundant supply of rich, wholesome, and clean milk, and with pride enough in the possession of a good cow to furnish a good shelter and comfortable quarters. Beyond these, breeders of fancy and high-priced stock may go to any extreme, and find it a paying business in doing so, but the village or city owner of one or two cows, kept solely for his own use, can not afford to indulge in any of this "upper-tendom" style of cow life—it won't pay him.* As a row of corn was cut and fed, the land was plowed, manured, and more corn (common field) drilled in thick, so that the ground for the whole summer presented the appearance of an experimental corn field, with

Corn at Every Stage of its Growth.

This was kept up throughout the months of July, August, September, and October. Indeed, the half of this yield was more than sufficient for keeping the cow in superb condition, so that much the greater portion was cut in the tasselling stage and cured for winter feed. After September begins, it will not do to sow corn here; the worms destroy it, but in our southern Bean, known as the

"Cow Pea,"

we have one of the very best of soiling crops. Sown either broadcast, or in drills, it does equally well—makes a rapid growth, and affords a tempting and nutritious food for cattle. It grows until checked by frost, and I know of no plant, save Indian corn, that produces more weight to a given quantity of land. In this instance, we fed it daily during October and late into November, before a frost put an end to its use in its green form. Anticipating a frost, it was cut and cured for winter feed; and *properly cured*, no hay equals it for cattle.

November 24th our cow went into winter quarters, and for her winter feed there was over 4,800 pounds of well cured corn-fodder, and some 1,500 pounds of good pea-vine hay—far more than she could possibly consume.

Early in December, after spreading over the land all the manure on hand, it was plowed again, with a two-horse turning plow, and sowed thickly to oats, harrowing them in. A seasonable rain gave them a good start, so they went into winter quarters in a fine condition—a good stand and vigorous growth. The cow now received

A Daily Ration of Corn-Fodder

and pea-hay, run through the cutter, and after mixing thoroughly three quarts of wheat bran and one quart of cotton-seed meal, was wet with water (warm in cold weather). This was given her in the morning, and the same quantity at evening. The corn-fodder and pea-hay for a day's feed was 15 pounds of each, more or less. On this food she was kept throughout the winter, giving milk of excellent quality, and in good quantity.

In February, she was tethered every fair day in the oats; and in March, was fed a good mess of fresh cut oats, still, however, keeping up the winter feed of corn-fodder, pea-hay, wheat bran, and cotton meal. About the first of April, the green oats fed was increased to

All She would Eat,

feeding three times daily, and the excellence of this diet was shown by a marked increase in the quantity of her milk. Though due to calve again in July, she continued to supply a family of ten persons with an abundance of milk. Late in April, when the oats were in the milk state, they were cut and cured for hay, making a little over a ton of good food.

Upon summing up the result, the following dollars and cents view of the experiment of sustaining a cow on a half acre is submitted. The labor expended in cultivation is not put down as an item of expense, as the carriage horse was used in plowing, and the hired man did the rest.

	Dr.	
To 1,500 lbs. Wheat-Bran, at 90c.		$13 50
" 200 lbs. Cornmeal, at 70c.		1 40
" 800 lbs. Cotton-seed Meal, at $1.00		8 00
" 300 lbs. Hay, at 75c.		2 25
Total		$25 15
	Cr.	
By sale of 2,300 lbs. Corn-fodder, at 60c.		$13 20
" " 2,100 lbs. Oats, at 75c.		15 75
		$28 95
Profit		$3 80

But the profit above shown, *does not express the real profit.* A year's continuous supply of rich milk, in abundance, for a large household; cream for special occasions, and that best of luxuries, delicious home-made butter, and one hundred dollars for the little heifer when six months old, aggregates the chief results of the experiment.

For the best results in soiling, no crop compares, as far as my experience goes, with our Southern variety of Indian corn; on rich land it produces marvellously. I have raised it at the rate of over one hundred thousand pounds (or fifty tons) per acre. There is no difficulty in producing three crops in one season on the same land. But cattle need a variety of food in soiling, as in other forms of feeding. Oats are excellent, and come in early. Cattail Millet ("Pearl Millet") is a rapid grower, but cattle are not specially fond of it; they like German Millet better. Garden (or English) Peas make an excellent food; coming into use in March, and lasting to June. I remember one year I produced *five crops* for soiling, on the same land, in one year, namely: oats, three of corn, and one of cow-peas. The last named is a superb food late in the year, after corn has gone. I have never experimented with roots, nor am I aware of any being cultivated in the South as a soiling crop. Cabbages set out in September and October will be ready for feeding in December, and will, next to corn, produce the largest weight of green food. One year I fed them to a considerable extent, and found my cows were very partial to them. By beginning with cabbages in December, to be succeeded by oats in March, then peas, corn, and millet, to wind up in November with the cow-pea, a cow in our climate can be soiled every day in the year. "MOBILE."

GEO. G. DUFFEE, *Mobile, Ala.*

Whiffletrees, Doubletrees, and Draught.

It is not always desirable to have both horses of a team work equally hard, but when it has been decided what portion each shall do, the whiffletrees, and other means of attachment, should be so adjusted that the prescribed work shall be constant, with no opportunity for either horse to shirk his part. In order to secure this uniformity in the division of the work, no matter what the position of the doubletree, or "evener" may be, *the draught*

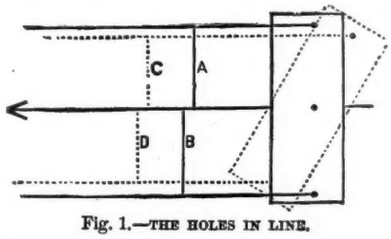


Fig. 1.—THE HOLES IN LINE.

pins must all be in the same line. This principle is best shown by diagrams, in which the doubletrees are unusually broad. Figure 1 shows a doubletree, in which the holes for the whiffletree, and that for the main draught pin, are in line. The direction of the draught is shown by the arrow. If the whiffletree holes are equidistant from the draught pin, it is evident that the two horses will have equal work to do, when the doubletree is at right angles to the line of draught. This equality is shown by the lines *A* and *B*, which are of the same length. When the doubletree is not at right angles to the line of draught—see dotted lines in the diagram—the whiffletree pins will still be equidistant from the draught pin. What one whiffletree loses in distance in moving forward of the main pin, the other loses in moving backward. The lines *C*, and *D*, measuring the vertical distance of the whiffletree from the main pin, are seen to be equal. With this form, the horse that keeps ahead of his mate, neither gains nor loses anything—the position of the pins, when all in a row, does not permit of an advantage. For the sake of securing the greatest strength for the amount of timber used, the doubletree is usually made with the main draught pin near the front edge, and the whiffletree pins near the rear edge of the "evener." The working of such a doubletree, is shown in fig. 2. It is evident, that so long as the doubletree is at right angles to the

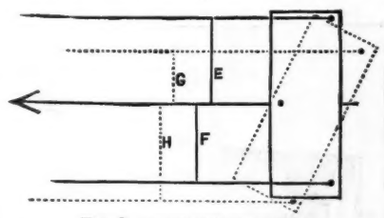


Fig. 2.—MAIN PIN IN FRONT.

line of draught, there is no advantage for either horse; but the moment one end of the doubletree is swung forward, the equality is destroyed. Thus the lines *E*, and *F*, which represent the proportions of draught, are equal. Not so with *G*, and *H*; the rear whiffletree pin being much nearer the center of the draught than the forward one. In this arrangement, the horse that keeps ahead of its

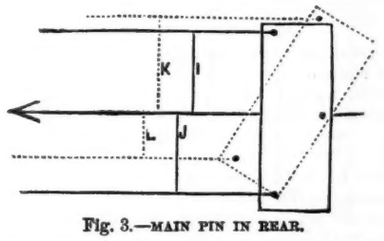


Fig. 3.—MAIN PIN IN REAR.

mate, may not do more than a third of the whole work, and yet the distance from the main draught pin, to each whiffletree pin, is the same. With this form of doubletree, the amount which each animal has to do varies with every change in the position of the doubletree, and this is a source of annoyance to animals of high temper, if not of more serious difficulties. The effect of putting the main draught pin near the rear edge, and the whiffletree pins near the front, is shown in fig. 3. With the pins equidistant from the main pin, and the doubletree at right angles, each horse does the same amount of work, but not otherwise.

Let the doubletree take the position shown in dotted lines, and the perpendicular distance from the two whiffletree pins is widely different, as shown by the lines *K*, and *L*, which also represent in inverse order the amount of work each animal must do to keep the doubletree in its present position. The nearer the line of draught of one of the horses comes to the line of draught of both (the heavy line with arrow), the more that horse is obliged to draw. In this case, the farther ahead the horse gets the greater is the load thrown on him, and the laggard has a comparatively easy time. When it is desirable to give one horse the advantage, that can be done by moving its whiffletree pin out, or that of his mate's in towards the line of draught; but it is not best to have the three draught pins out of line that the horse may get and keep an advantage when he does not deserve it.

Selecting Seed Corn.—It is as important to make a good selection of the seed that is to produce the next crop, as it is to choose the live stock that will grow the future herd. The selection should not be left until the time of husking, but be done now. Go through a portion of the field and select those stalks that are well eared and unusually vigorous—in fact, the best the field affords—and give them an extra chance for further development by removing the other stalks from the hill. Anything that will increase the vitality and perfect the development of the grain that is to be planted for the next season's crop, should not be

forgotten. We would seek for stalks with one good ear, rather than those with two small ones.

A Milk Sink or Cooler.

Mr. "W. H. B.," Cecil Co., Md., sends a description of a home-made "Milk Sink," as he calls it, which he holds as superior to any other he has seen. As it is not to be secured by a patent, we present it to our readers. A brick box is built 6 feet long, 8 feet wide, 24 inches high inside, and the walls the length of one brick (8½ inches) in thickness. There are pieces of wood the size of the bricks placed in the top layer of bricks, in the four corners and in the middle of each side, for the purpose of fastening a wooden capping, thus making the walls secure. The "box" thus constructed is shown in figure 1. A lid is then made of thin boards, and fastened on one side by stout leather hinges, with a handle on the middle of the front side to raise it by. See figure 2. It is necessary to state that the brick-work is laid up in hydraulic cement, and to insure from any danger from leakage, two coats of cement are put on the inside of the Sink. Two

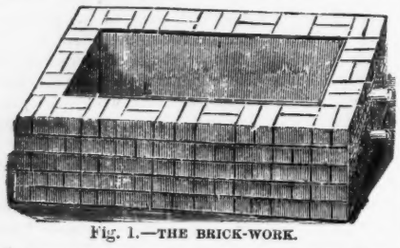


Fig. 1.—THE BRICK-WORK.

small outlet pipes are put in one end of the Sink, one near the bottom and the other near the top. They may be of iron 1¼ inch in diameter, and are closed by simple plugs at the outer ends. It would be well in the construction of the Sink to have one end a little higher than the other, that the water may all flow out the lower pipe when desired. The cans that Mr. B. uses are made of "3x" tin, 18 inches deep and 8½ in diameter, holding 20 quarts. Two strips of thin iron are soldered across each

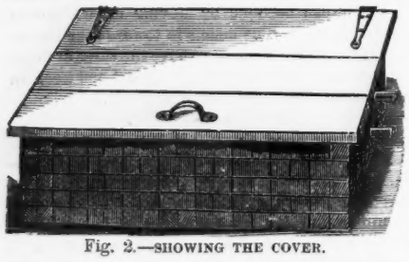
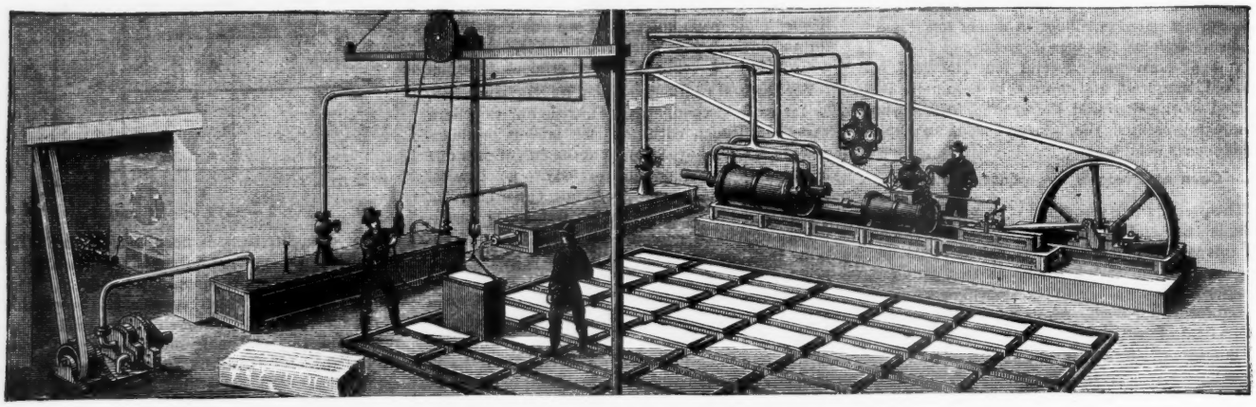


Fig. 2.—SHOWING THE COVER.

other on the bottom of the cans, to keep them from wearing out; they are provided with covers, and bails to lift them by. When all is ready, fill the Sink with water until the cans will nearly float. If possible have the Sink near the pump, or so that the water may be conveyed in a pipe. Mr. B.'s arrangement is something like that shown in figure 3. The lid of the sink should not be put down tight until the new milk is perfectly cold. A large button fastened on the edge of the wooden cap will serve to keep the cover up sufficiently to allow the air to circulate freely. When the milk is cold the cover is closed, and the Sink is left to itself until it is time for skimming or putting in new milk. The Sink described is large enough for 15 to 20 cows. With a large dairy it might be an improvement to have a partition about one-third of the way from one end for new milk, as the cans containing it should have more room than those containing cold milk. "When straining the new milk into the cans always do it outside of the Sink, as there is otherwise more or less spilling or spattering into the water, and in warm weather it might cause the Sink to become sour and smell. Cleanliness is about half the battle in first-class butter-making."



AN ARTIFICIAL ICE MACHINE—PORTION OF ROOM SHOWING THE PROCESS.

Artificial Ice and How it is Made.

When the temperature of water falls to 32 degrees Farenheit, or zero Centigrade, it passes into the solid state—in other words, it freezes and becomes ice. In most parts of the earth, this formation of ice takes place naturally to a greater or less extent. During nearly half of the year, ice is one of the most common objects in the temperate regions of the earth. Ice, formerly regarded as a luxury in warm weather, has so many economic uses, that it has become a necessity, and the capital invested in collecting and preserving it, could we know its amount, would be immense. The question of producing ice artificially at any time, and in places most needing it, is a most important one. The working of the various ice machines, depends upon a well known principle in physics, namely; When a body changes its state, *i. e.*, a solid becomes a liquid, or a liquid becomes a gas, heat is taken up, and consequently cold is produced. This principle is illustrated in various ways. If we cause ice to melt by placing salt with it, there is a great absorption of heat, or a production of intense cold. A certain amount of heat is necessary for the existence of water as a liquid; when we would convert it into a solid again, we abstract that heat. The amount of heat disappearing in these changes is said to be *latent*, or hidden in the liquids. So in the change from a liquid to a gaseous state, or a state of vapor, heat is similarly taken up. This is nicely illustrated in the pouring of a little ether upon the hand—as it volatilizes, heat is absorbed from the hand and a sensation of cold is experienced. There are a number of liquids that, like ether, are very volatile, that is, pass readily into the form of vapor—such as Ammonia, Sulphurous Oxide, Ethylo-Sulphurous Dioxide, etc., all of which are now more or less used in the artificial production of ice. In the various processes one of these very volatile liquids is made to take on the gaseous state; to do this it must have heat from some source, and it is so arranged that water shall supply this needed heat, and in so doing it becomes solid, or ice. The details of the method vary, depending upon the liquid used, but the construction of the apparatus is essentially as shown in the accompanying engraving. The excavation in the center of the room is the freezing tank which contains an uncongealing bath. Molds are placed into this bath which contain the water to be frozen. The bath is cooled to a low temperature, by means of the volatizing liquid, which is caused to vaporize within tubes that pass through the bath. The vaporization is greatly increased by having the air partially exhausted from the pipes; in other words, there is a partial vacuum in which the vapor is rapidly formed. The latent heat of vaporization being constantly taken up from the non-freezing bath, reduces its temperature; that in turn absorbs heat from the molds containing the water to be frozen. The vaporizing liquid is kept in constant motion—being used over and over again—by means of an exhaust and compression cylinder in connection with a steam engine, shown in the rear of the room. The non-freezing bath is also kept in motion by the engine. When the water is frozen, the mold containing the ice thus formed is raised from the bath by means of a crane and pulleys, as shown in the engraving, and the ice removed, when the mold is again filled with water.

The same kind of apparatus is now used to some extent, for cooling rooms in which fruits, vegetables, meats, and other perishable articles are stored. Instead of having a large bath tank for

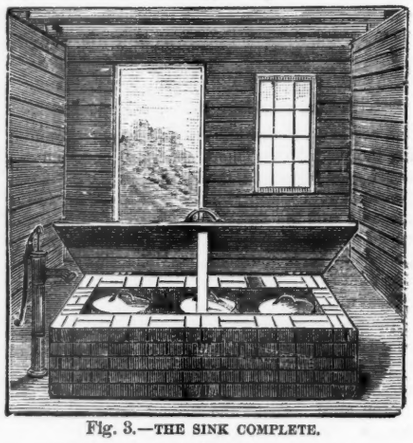


Fig. 3.—THE SINK COMPLETE.

the reception of ice molds, the cold, non-freezing liquid is forced through long tubes in the cooling room, and in this way the storehouse is cooled.

The practicability of the artificial production of ice is demonstrated beyond a doubt, and it may be well for those farmers, etc., who are so located that a supply of natural ice is not at hand, to look into the matter of ice machines. The machines are made of very many sizes to suit the trade, ranging all the way from a capacity of a hundred pounds to several tons of ice per day. A number of farmers might combine and a single small machine would furnish them all with the ice needed, and could at the same time be used to cool a store room for the keeping of fruits, meats, and vegetables.

We are indebted to the New York Ice Machine Co. for the engraving herewith presented.

The Houseleek—Umbilicus.

Among the plants well suited to grow upon rock-work, are the Houseleek and other closely related plants. Those who are fond of odd forms of vegetation, by planting a rock-work exclusively with the various species of *Sempervivum* or Houseleek, some of the *Sedums*, or Stone-crops, and others of the same family, can produce a most grotesque effect. The hardy species of these plants, and there are a great many of them, when once planted require but little care. They are scarcely affected by drouth, and when once well established, they take such full possession of the ground, and cover it so closely, that little else can get a foothold. The *Sempervivums* present a general resemblance in form, to that of a rosette, but vary in size, the shape of the individual leaves, and especially in color. Some bloom quite freely, but their flowers are generally of a dull pink or pale purple, and are not especially showy. Knowing this to be the general character of the flowers, we were surprised to see on a rock-work devoted to such plants in the grounds of Messrs. Woolson & Co., a patch of bright crimson, or almost scarlet. An examination showed that the plant was not a true *Sempervivum*, but a hardy near relative, of which we had seen accounts in European journals, a species of what the European Catalogues call *Umbilicus*, or Navel-wort. This one, from its close resemblance to the Houseleeks, is called *U. sempervivum*, the "Houseleek Navel-wort."

Modern botanists do not recognize the genus *Umbilicus*, but unite that and *Echeveria*, with *Cotyledon*. This is not the place to discuss such matters, and we can not explain further than to say that the best botanists find that the plants originally called *Echeveria* and *Umbilicus* are so much like those called *Cotyledon*, that they see no good reason for three different names, and they place them all under the oldest name, *Cotyledon*. Florists are generally slow to adopt such changes, and are apt to continue to call a plant by the name they first knew for it. Until there can be a better agreement between botanists and florists, and other cultivators, we must submit to the inconvenience of having one set of names for botanical works, and another for the garden and garden works. To come to the plant in question, and as we speak of it as a garden plant, we give it its garden name, *Umbilicus sempervivum*, comes from the Eastern Caucasus. It makes small rosettes of very pale leaves, not much over an inch across. The second year they throw up the flower stem, when the plant appears as in the engraving, which is of the natural size. There are several other species, some of which have white, and others yellow flowers; the present species especially interests us as giving a positive and rich color among plants, which, though striking in foliage, are not usually very brilliant in their flowers.

THE HOUSELEEK (*Umbilicus sempervivum*).

KRAMER'S LILY (*Lilium Krameri*).

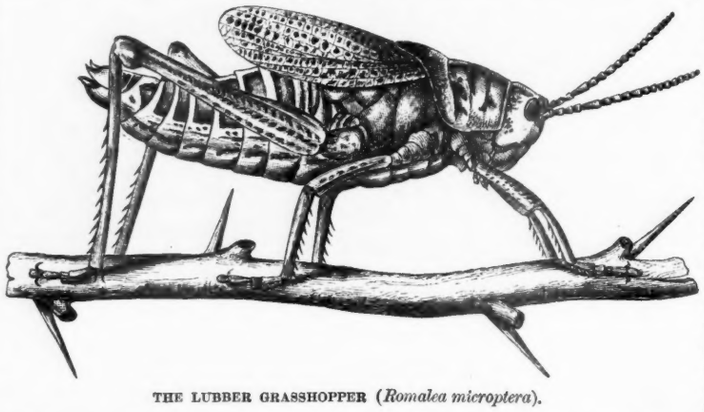
Some Notes on Lily Culture—Kramer's Lily.

One need not be very old to recollect the time when the old White Lily, the Tiger Lily, and the Martagon or "Turk's Cap," were all the lilies to be seen in ordinary gardens. Now the species and varieties are so numerous that it would require a large bed to contain but a single specimen or two of each. While in purity of its whiteness, in fragrance, and the grace of its typical lily form, the old white lily has not been, to our notion, surpassed, entirely new types have been introduced, and we now have a great variety in form and a wonderful range of color, including some of the most brilliant and some of the most delicate tints known among flowers. The great improvement in Lily-culture during the last 30 years or so is due to several causes, prominent among which is the opening of Japan to commerce. Not only were the native species of Japan introduced into our gardens, but it was found that Lilies had long been favorites with the Japanese gardeners, who by careful hybridizing and crossing had produced garden forms of great beauty. In looking for the causes for the advance in Lily-culture, the efforts of our own cultivators in crossing and hybridizing must not be omitted; the splendid results obtained by Hovey, Wilder, Parkmann, Hanson, and others, as well as those by European cultivators, show what a promising field is still open to the patient florist. The introduction into cultivation of our native species from both sides of the continent, has added new forms and color; indeed, those who have not made the experiment have no idea of the great variety in form and, within a certain range, of color, the common species of our swamps can present when transferred, as they well deserve to be, to the more favorable conditions of the garden. As with other plants, new introductions among lilies are for a while costly, but the majority, including the most beautiful, are sold so low as to place them within reach of all who can buy flowers at all. Their moderate cost is due to the fact that most of the species can be readily multiplied from the bulb-scales. Each of the scales of which the bulb is composed, will, under favorable conditions, form a bulb, and sometimes two or more. This method, now no longer a florist's secret, will allow any one to multiply these beautiful plants, as it requires not so much skill as patience. One has only to carefully pull off the scales, and a few of the outer ones can be taken without injury to the bulb, set them out, just covering them in boxes of light sandy earth, and keep them at a uniform temperature of about 50° or 60°. The earth is to be kept barely moist, not wet, and in about six or eight weeks minute bulbs will be formed at the base of each scale. All the lilies, except perhaps a few from the mountains of India, are hardy, and many that were formerly considered tender are now

known to have suffered, not from cold, but from a long continued high temperature. Some of our cultivators, following the English method, planted the tall-growing kinds, such as *L. auratum*, in their beds of rhododendrons. This was done for effect, merely, as it gave the lily-flowers the rich dark-green of the rhododendrons as a background the better to show off their colors, and it added to the attractiveness of the rhododendron plantations by clothing them a second time with flowers, as the lilies do not bloom until long after the shrubs have finished their display. Some of our friends who planted their lily-bulbs in this manner found a marked improvement; the flowers showing an increase in size and numbers. One who had never been able to get but one bloom from *L. auratum* when in an ordinary border, the bulbs either breaking up into numerous small ones, or dying out altogether, a trouble ascribed to the severity of the winter, accidentally left out the bulbs that were among the shrubs, and instead of losing them, as he expected, found the second summer's bloom much finer than the first. These experiences in different localities led to the discovery that our failure to secure results with lilies at all approaching those of the English gardeners, who make nothing of 50 or more flowers on the stem of a *L. auratum*, was not due to our more severe winters, but to the long continued heat of summer. The shade of the rhododendrons kept the soil cool and moist, and gave the bulbs just the most favorable conditions for their growth. Planting the tall lilies among deciduous shrubs can be practised by those who have no rhododendron beds. Where the lilies are grown in open beds, we have no doubt a light mulch, preferably of leaves, would be of great benefit to all the species. Among the lilies that flowered very satisfactorily with us this season is one known as Kramer's Lily, *Lilium Krameri*. This is of special interest, as it is supposed to be one of the hybrids of the Japanese gardeners, and it is thought that *L. longiflorum* and *L. auratum* are its parents. This, which the engraving shows of about half the real size, has the general habit of *L. longiflorum*, but is of a delicate rose-color within, and has a fragrance similar to, but less oppressive, than that of *L. auratum*, and is one of the best of its class.

The Lubber Grasshopper.

A tin box came by mail with no mark as to its contents, and no letter referring to it, had been received. In such cases great caution is required in opening the package, as one has to be prepared for whatever may present itself. Slowly raising the cover there appeared the drollest, most knowing looking face!—much too small for that of a quadruped, and it seemed too large for that of an insect. Further examination showed it to be an insect—and a good deal of an insect when we consider that there were three inches of it! A letter received the next day from L. Phelps, Orange Co., Florida, explained that he had sent a troublesome grasshopper to find out what it was. Having the good fortune to possess a set of Prof. Townend Glover's beautiful illustrations of the *Orthoptera*, we found that he had given the portrait of the insect and we here reproduce it. The engraving is rather below the size of our largest specimen, the body of which measured quite 3 inches in length, while its "hoppers," as boys call the hind legs, are at least 3½ inches long. The body, legs, and head, are yellowish, barred and spotted with black; the wing covers, which are thought by many to be the wings, in addition to yellow and black, have a handsome shading of rose-color. The portrait, in profile, fails to show the full face, which had such an intelligent expression that it did not seem altogether right to drown the creature in alcohol in order to preserve it. The eggs are laid in the ground, and the larvæ, as is the case with other grasshoppers, are much like the perfect insect in shape and movements, but are without wings, and are black with orange-red markings. Though the perfect insect has wings they are too small to be of use; it can not fly, and as it is very sluggish in crawling and clumsy in jumping, it has received the name of "Lubber Grasshopper." Its scientific name is *Romalea microptera*—the Small-winged Romalea. The "Lubber" feeds upon foliage of various kinds, but shows a preference for the leaves of the Orange-tree, as Mr. P. writes: "especially the tender ones, and the buds that I have put in, and are my pride." The insects have long been known along the Gulf Coast, as far west as Louisiana, as destructive to garden vegetables of various kinds, and they are said also to eat the fruit of the peach and fig. However moderate their other movements, they are not slow in eating, and in all stages of their existence devour orange leaves most voraciously. As they are obliged to



THE LUBBER GRASSHOPPER (*Romalea microptera*).

crawl up the trees, it would not be difficult to arrange some barrier to their ascent. They are quite too much for domestic fowls, which refuse them. Being, even when young, slow to get out of the way, they are readily crushed under foot or caught in a net. As their destructive powers increase with their growth, they should be proceeded against when quite young; when they first make their appearance they are less than an inch long, and being so much blacker than the mature insect, may not be recognized as the same. They might be readily disposed of by the use of Paris Green or London Purple upon their food. We would suggest as more economical than poisoning the trees, to place leafy branches of the wild orange, or those that can be spared from cultivated trees, in pails or other vessels of water, to keep them fresh, and apply the poison to the leaves of these. The lazy insects would no doubt gather on these traps, as they would be saved the trouble of climbing for food.

Fruit Dryers and Fruit Drying.

The great superiority of fruit dried by artificial heat, over that prepared in the sun, has turned the attention of many to the subject. So superior is the artificially dried fruit that in the market it bears as a trade name "Evaporated Fruit," to distinguish it from the common article, while the price at which it sells is so much higher that it may properly excite the interest of fruit growers. In October last we gave an account of the "Zimmerman," one of the modern dryers and our experience with it, but there are many who wish to operate upon a larger scale than is possible with a portable dryer, and several of these have written asking us to give a plan for constructing a large dryer. While we would willingly aid our correspondents, we are here met at the outset by the fact, that the various Dryers and Evaporators, large and small, are patented, and it would hardly be possible for us to suggest a contrivance for drying without unconsciously interfering with some one of half a dozen patents—especially as we do not know what each claims as his particular invention. Any fruit dryer must consist of a source of heat, and something to hold the fruit while it is drying. The mere drying of fruit by artificial heat, we suppose, cannot be patented; could it be, every woman who dries her sweet corn and pumpkin in the stove oven, with the door open, would be an infringer. Any improved or original methods of constructing these essential parts, is very properly patentable, and whoever would put up an apparatus for drying, must avoid interference with these patents. Some patents are trivial, they do not cover inventions, but are for things that have long been in common use, and never should have been granted; and notwithstanding that such patents exist they are nuisances. We believe in patents, and are sure that our patent system, imperfect as it is, and as strangely administered as it sometimes seems to be, has vastly promoted the prosperity of the country. If there is any feature about it that we do not like, so long as it is the law, all good citizens will observe it. While we would do all in our power to aid one in resisting a false claim in regard to a patent, we would not knowingly aid one in interfering with a regularly secured patent, however absurd the granting of it may seem. So in the matter of fruit dryers, while we would gladly aid those who wish to do so, to construct them, we should do wrong were we to give a plan that trespassed upon the rights of others. The best we can do is to describe an unpatented arrangement, which includes all the essentials of a successful dryer. The first device for artificial drying we ever examined, was used in the preparation of vegetables in immense quantities for the army during the war. Enclosures or rooms of convenient size were made of frame work, and the sides covered with cotton cloth. The diagram giving an end section of one of these drying rooms will show the arrangement. At *a, a*, are steam pipes, the source of heat; these ran around three sides of the enclosure, near the bottom; slats *b, b*, were fastened across at intervals, to hold the trays, *c, c*, which were simple frames with a bottom of mosquito netting or other open fabric. The frames were alternately close against the side of the enclosure so that the hot air would take the course shown by the arrows. The cabbages, carrots, etc., sliced thin, and spread on the trays, were rapidly and perfectly dried. The whole was a temporary arrangement, put up in some vacant loft, but the product could not have been better had the most expensive apparatus been employed. This illustrates the general principle upon which all dryers are constructed; there is a source of heat in the steam pipes, and trays to hold the fruit or whatever is to be dried, and an arrangement by which the hot air is caused to circulate among the trays in the most complete manner. There was of course an opening for letting in an abundant supply of fresh air below, and another for the exit of the hot and moist air above. Whatever else there may be about a dryer, these conditions must be met. This description of an unpatented arrangement may be of service to those who wish to experiment in the matter. If a stove is used to supply the heat, of course a room inclosed by cotton cloth is out of the question. A word of caution is necessary here: wood work of any kind long exposed to a temperature much below that at which it is charred, becomes after a while exceedingly combustible, and will take fire with the greatest ease. Hence danger from fire is always present

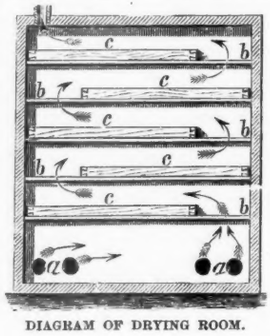


DIAGRAM OF DRYING ROOM.

and is to be guarded against. In some of the large patented dryers the trays are suspended upon endless chains, which pass over wheels above and below; the trays of fresh fruit are put in nearest the furnace and gradually raised as others are ready to go in below them. Those who propose to dry fruit on a large scale will very likely find it cheaper in the end to arrange for the construction of one that has been thoroughly tested, even though it is patented. The sum paid the patentee for the right to construct, according to his plans, may easily be less than an inexperienced person would expend in experiments and alterations, and after all, he runs the risk of making use of some device that has been patented, and may at the end have to pay more for it than it would have cost at first. It would be well for all who propose to dry fruit largely to look into the capacity of the largest Zimmerman, as well as examine the stationary apparatus.

The Tortoise Beetles.

Mr. P. Frenzeny, Bergen Co., N. J., recently left with us specimens of an insect found upon his potato vines. Since the advent of the *Doryphora*, which is by common consent known as *the* Potato Bug, we hear much less than formerly of the dozen other insects, known to live upon the potato plant. The insect left by Mr. Frenzeny, is one of the Tortoise Beetles, and though recognized as an enemy to the potato, has never been sufficiently numerous to cause much injury. As a representative of a group of insects, some of which are quite destructive of other plants, especially the Sweet Potato, and the larvæ of which have some marked peculiarities, we reproduce its portrait from Prof. Riley's Second Report on the Insects of Missouri, and some figures of the larvæ of related species. The insect is known as the Clubbed Tortoise Beetle, *Deloyala clavata*. The engraving is almost twice the real size. The broad, yellowish, transparent wing-covers, extend for some distance on each side, and at the rear, beyond the body of the insect, and in front there is a similar helmet-like projection beyond the head. The resemblance to a tortoise is still further increased by the dark opaque markings, which, extending to the edges of the shell, look much like the paws of a turtle. At the time this Report was made, the larva of this particular species was not known, it being the perfect insect that feeds upon the potato. But there are several other Tortoise Beetles, belonging to the closely related genus *Cassida*, of which the history is well known, and it is likely that the larva of this one, will be found to have similar habits. Fig. 2 shows the larva of one of these, the Mottled Tortoise Beetle, a well known enemy to the Sweet Potato in the Southern States. This has a forked tail, and uses it to spread a sort of screen or parasol, apparently to protect it from the sun. This shield consists of the dried dung of the insect, often mixed with its cast off skins. In some, this parasol is irregularly three-lobed in shape, but in this it is in broad masses with branches, as in fig. 3, which shows a similar larva as looked down upon. As the excrement is thoroughly dry, there is nothing offensive about it, and its real nature might not be suspected at first sight. In marked contrast with what we can not help regarding as an unpleasant habit of its larva, is the great beauty of the perfect insect of one of the species, the Golden Tortoise Beetle, which Riley describes as "one of the most beautiful objects that can be imagined. It exactly resembles a piece of golden tinsel."

Fig. 1.

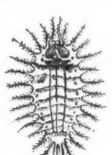


Fig. 2.

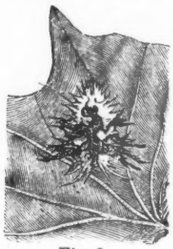


Fig. 3.

These species of Cassida are found on the wild Morning Glory, and also on the Sweet Potato vine.

Teosinte for Warm Climates.

BY PROF. ASA GRAY.

When the *American Agriculturist* first figured and brought to notice the gigantic grass known as Teosinte, as a forage plant, it was careful to state that it required so long a season that it promised to be of value only in the Southern States. As we have been the means of sending seeds to subscribers in several of the warmer states, this spring, we hope to have reports of its behavior this fall. Prof. Asa Gray has gleaned some items as to its value in other countries which have an interest here. He writes:

The Director of the Botanic Garden and Government Plantations at Adelaide, S. Australia, reports favorably of this strong-growing, corn-like forage plant, the *Euchlæna luxurians;* that the prevailing dryness did not injure the plants, which preserved their healthy green, while the blades of the other grasses suffered materially. The habit of throwing out young shoots is remarkable, 60 or 80 rising to a hight of 5 or 6 feet. Farther north, at Palmerston, in the course of 5 or 6 months, the plants reached the hight of 12 to 14 feet, and the stems on one plant numbered 56. The plants, after mowing down, grew again several feet in a few days. The cattle delight in it in a fresh state; also when dry. Undoubtedly there is not a more prolific forage-plant known; but, as it is essentially tropical in its habits, this luxuriant growth is found only in tropical and subtropical climates. The chief drawback to its culture with us will be that the ripening of the seed-crop will be problematical, as early frosts will kill the plant. To make the Teosinte a most useful plant in Texas and along our whole south-western border, the one thing needful is to develop early-flowering varieties, so as to get seed before frost. And this could be done without doubt, if some one in Southern Texas or Florida would set about it. What it has taken ages to do in the case of Indian corn, in an unconscious way, might be mainly done in a human lifetime by rightly-directed care and vigorous selection. Who is the man who is going to make millions of blades of grass grow where none of any account ever grew before?

Melilots as Weeds.

It now and then happens that a plant heretofore regarded as harmless, finds a locality specially favorable to its development, becomes aggressive, growing where it is not wanted and is recognized as a weed. Singularly enough two species of the same genus, *Melilotus*, have come to us this year from widely separated localities—Maryland and Texas—to ascertain their names, and both represented as unwelcome intruders. There are two species of Melilot common in the older States, a white and a yellow flowered. Both are coarse branching plants 2 to 4 feet high, or even taller. The leaves are shaped like those of clover, rather smaller, and the divisions toothed; the flowers, which are minute pea-shaped are in little racemes, which go on lengthening and blooming, so that while there are buds and flowers above, the little one- or two-seeded pods at the bottom of the cluster will be full grown if not ripe. The engraving of the top of a branch of about the natural size will allow it to be identified if met with. The White Melilot, *M. albus*, is the one-figured, and the one brought from Maryland; the yellow, (*M. officinalis*) besides the different color of its flowers, has somewhat differently shaped leaves, there are other species, and all have the peculiar odor that is so marked in the Sweet-scented Vernal-grass, the Seneca grass, and especially the Tonqua Bean. The White Melilot, known as Sweet Clover, and sometimes as Bokara Clover, is sometimes cultivated by those who are fond of its perfume. It was formerly cultivated in England, not so much as a fodder crop, as cattle will not eat it when fresh, but to mix with poor hay in order to perfume it. In Europe this or a related species is bruised and mixed with the curd to flavor it in making Gruyère cheese. This is all that can be said in favor of the plant; it is often found as a straggler along road sides and in waste places, but not in a manner to arrest attention. Last June, Mr. T. Davids, who has a farm near Annapolis, Md., brought us a remarkably vigorous specimen, which reached as high as one's head, and branched from the very base. This, according to Mr. Davids, is spreading with great rapidity, making inroads upon the grass lands, appearing in the wheat fields, and threatens to be a serious pest. In case of the Texan plant, a specimen was sent by a correspondent of a plant that had suddenly appeared in his "bottom lands," as the alluvial banks of rivers are called in all the Western States, the term being the equivalent of *intervale* as used in New England. The plant proved to be still another species, the Small-flowered Melilot, *Melilotus parsiflora*, of Continental Europe, and no doubt introduced by the early Spanish settlers, as it extends from Louisiana and Texas across through Mexico to California. We have seen it occupying acres along rivers to the exclusion of everything else, but even hungry mules would not eat it. It is not so robust a plant as the White Melilot, and has still smaller yellow flowers. These plants are troublesome as is any other that occupies land needed by cultivated crops. If left alone they are biennials, the root dying at the end of the second year, and after it has provided for its abundant increase by seed. If the tops are cut away before the seeds are ripe, we are met by another difficulty—cutting off the top prolongs the life of the root. Were a crop of seeds perfected this would so exhaust the root that it would die, but by preventing this we keep the old root which becomes stronger and pushes up its shoots year after year. There seems to be one of two alternatives: to grub up the root and make an end of it, or to cut frequently and continously; as often as there is a sufficient growth for the scythe to take hold of, it should be cut away. The difficulty attending the destruction of this and many other weeds when well established, shows how important it is for the farmer to be able to recognize these plants in their young state. At that time a stroke of the hoe will, without difficulty, destroy a pest which, when it gets full possession, may require the work of hours to remove it.

THE SWEET CLOVER (*Melilotus albus*).
Single Flower and Pod Enlarged.

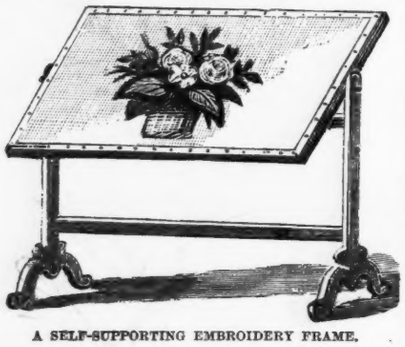
Currants are one of the welcome small fruits in mid-summer, being especially welcome in the hot days. If left to themselves the season is short, but by covering the ground around the bushes with a heavy mulch, a screen of cloth, or even of newspapers, the season may be prolonged by several weeks.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

An Embroidery Frame.

For large pieces of embroidery-work, a frame that will hold the work up in front of the worker is not only a great convenience, but almost essential. The engraving here given shows such a frame, which is cheap and easily made. It consists of two standards, or legs, with curved cross-pieces at their bottoms to give it a firm footing, and two horizontal bars to hold the standards together, as shown in the engraving. The frame, made of four wooden strips, is held to the standards by two wooden pins passing through the tops of the standards and the middle part of the ends of the frame. By this arrangement the frame can be swung around with ease and the work placed at any convenient angle.



A SELF-SUPPORTING EMBROIDERY FRAME.

To those accustomed to use the simple lap frame, or any other, it is not necessary to state that it is best to stitch a strip of strong linen, or tape, along the woof ends of the material, which must then be sewed firmly to the webbing on the frame. All this work of putting the foundation on the frame should be done before that is adjusted to the standards; this latter can be easily done by pushing the pins into the places made to receive them in the frame.

Home Topics.

BY FAITH ROCHESTER.

Care of Children's Teeth.

A mother of several children lately told me some of her experience. A few years ago she thought that her oldest boy's teeth in the front of the lower jaw were decaying badly. This was a disappointment to the mother, who had fed her children carefully on nourishing and wholesome food, as a general rule, keeping both pickles and confectionery from them. Studying the matter over, she jumped to the conclusion that what she had read concerning the mischief-making properties of the tomato must be true, especially as her husband, who was very free in his use of tomatoes in their season, had a peculiar trouble with his teeth. She had observed that the children's (especially the boy's) teeth grew white and clean when there was a plenty of ripe tomatoes, and she thought the acid of the vegetable probably went too far and acted upon the enamel of the teeth. But when the boy, then fourteen years old, went to a dentist to have his teeth filled, lo! there was no filling to be done. "Your boy has a splendid set of teeth," the dentist told the mother. "There is not a cavity in them. Unusually good teeth for a boy of his age." And the dentist had no doubt that the teeth were better than they would have been if the owner of them had munched candy and pickles, as children usually do. "They must be cleaned, and that without delay," he said. So the tartar which had gathered and crusted gradually at the crown of the teeth was removed by the dentist, and with it all appearance of decayed teeth. Now the boy has nothing to do but to keep his teeth clean in order to avoid dentistry bills in future. The younger children are warned to avoid the older brother's trouble by the daily use of tooth brushes. From their father's case they learn to avoid the opposite extreme. His teeth are hopelessly discolored, and a few are habitually loose, but the useful tomato is no longer suspected as the cause. He had an opportunity to read some in a work on Dentistry, and came to the conclusion that hard "scouring" of his teeth with gritty substances, when he was a young man, had worn away the hard enamel of his teeth so that the strong coffee he drank (during his soldier life especially) penetrated and permanently colored his teeth. I dislike to hear of *scouring* the teeth. When they have been neglected this may be necessary to get them once clean. The dentist has peculiar tools for removing tartar crust, but the yellow deposit on children's teeth can be cleaned away as the dentist does it, by any one. Take finely powdered pumice stone and a little clean soft pine stick to rub with. Dip the pine stick into water and then in the powdered pumice, and rub the teeth gently. Afterwards wash them with soap and water, using a tooth brush. It is well to use a little fine clean soap occasionally for cleaning the teeth, but plenty of pure water (a little warm in cold weather) will usually suffice for cleansing the teeth of persons of good dietetic habits. To make good teeth in the first place, beginning when we can begin, and allowing for "ancestry," the mother should eat plain and nutritious food, a varied diet well supplied with bone material, as the grains are when it is not bolted or sifted out, and lean meat. For young children milk should be freely used, and graham and oatmeal also. [We are glad that so sensible and practical a person as Faith Rochester, hits this tomato nonsense on the head. Some two years ago a paragraph appeared somewhere to the effect that much of the trouble with teeth was due to the free use of tomatoes. This was copied in all the papers, and thousands of persons gave up the use of tomatoes to save their teeth. We at once stamped this notion as nonsense, and are glad to have our denial of the injurious effects of tomatoes, made on general principles, supported by what comes very near being direct evidence.—ED.]

Clean Floors.

I admired my neighbor's bare floors until I found how they were made so spotlessly clean. "With soap and sand and a scrubbing brush," she told me.—"Applied by a woman down on her knees?" I asked.—"Yes," she replied. "You can have your's look like mine if you use the same means,"

No, thank you. Neither I nor my daughter shall put ourselves to this drudgery, and I shall not require it of any woman. Physicians say that the position assumed in order to scrub a floor with a brush and cloth makes the labor so done a positive injury to the woman, often resulting in very bad cases of female disease among working women. If floors must be scrubbed with soap and sand, a long handled brush or a broom should be used for the purpose. But all this hard scouring is unnecessary labor, if paint or oil be properly applied to the boards of the floor. Then only warm water or a weak suds is necessary for cleaning, and a nice long handled mop is the proper implement.

Starvation in the Midst of Plenty.

On the farm there ought to be plenty to eat for both man and beast. There is, usually, but they do not always get each a full share of nourishing food. The wheat alone contains all the elements necessary to maintain the growth and strength of the body. But when wheat is ground and bolted and made into ordinary fine flour, it is deprived of much of its most strength-giving properties. The fine flour is mostly starch, and starch alone can never make a very good "staff of life" to lean upon for strength. If the bran can only be made reasonably fine, it is better in our bread than out of it; but there is a great deal of graham (in western groceries at least) so full of coarse scales of bran that it is unfit for daily food, unless it is sifted through a common sieve. The portion of the wheat next the bran and mostly removed by the miller's bolting, is the most nourishing part of the wheat. To take this from the wheat and give it to the cattle is to starve our children in favor of the cattle.

What are the other staples of the farmer's bill of fare? Potatoes and pork. Potatoes are good food in their kind and degree, but not alone. Like most vegetables they furnish some of the mineral elements needed in the animal system, but they are mostly starch and water. They should only be used to help make a pleasant variety, and not, as is too often the case, as the main dependence. Children are sometimes half-starved on them, though they appear fat and so are considered healthy. Starch belongs to the carbonaceous foods, as do sugar and grease. All of these help to produce fat, but afford little strength. So the "fine, healthy-looking child," as ignorant people describe the big-cheeked, fat baby, may be tired and feverish, craving it knows not what, and an easy prey to disease, for lack of good nourishment. Potatoes for children should be well mashed and dressed with good milk, instead of butter and fat meat. Potatoes and beef go well together, each furnishing something that the other lacks.

Concerning pork I have little to say. We never use it in our family. Those who raise their own, may feel so sure of its healthiness as to eat it without misgiving, but I wonder how any one who depends upon the common market supply can relish pork. It is always poor food for children, or for any one inclined to be billious, and especially bad for those who are at all tainted with scrofula.

Variety in the Daily Food.

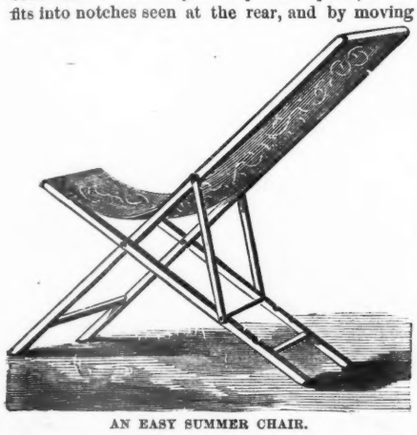
Though good wheat, or good beef, or good milk, may each furnish a perfect food, or contain all of the elements needed to support life, it is not best to depend upon any one article of food alone, except in the case of nursing babes, and then the mother should have a suitable variety. To obtain a variety, some house-keepers only go a round of different kinds of pie and cake, all equally bad perhaps; thinking that if the pantry is well supplied with these things, little other cooking is necessary. It is a great mistake. Cake and pie do not supply much actual food, and the good material that is used in them is put into such shape that the stomach is wearied and worn-out by the effort to digest them. This accounts for much of the tiredness complained of by women and girls. They are half starved, because their food is poor. The use of much poor trash called "dainties" (I don't abuse these things because I dislike them; I have a "sweet tooth," and know my own weakness well enough to understand the weakness of others), spoils the appetite for substantial food. The stomach is feeble for lack of good material in the blood (made constantly of our food and air) to repair its waste, and it takes food unwillingly because it is tired with overwork—overwork upon the concentrated conglomerations of rich cake and pastry. An error easily fallen into in such a case is to give up one thing after another because it "hurts" us, until the stomach becomes so weak it can hardly bear anything. It is slow starvation. We must not only "cease to do evil;" but must also "learn to do well"—not only give up unwholesome food, but eat plenty of that which is wholesome.

The proper variety is one made up of fruits, vegetables, grain, and animal food, the latter consisting of healthy meat, eggs or milk in its various forms. With palatable graham or oatmeal preparations, especially where milk is freely used, meat is seldom craved or found to be necessary to high health and strength, but when starch, sugar, and fat preponderate, as in the common fare of white bread and butter, potatoes, cake, pie, and a little sauce—beef (especially steak) often seems an absolute necessity to one who has to put forth strength. Coffee can not possibly supply its place. It does not *give* strength, but only stimulates it, or calls it out, making one *feel* strong while under its influence. Nourishing foods really strengthen us.

You would hardly believe, until you try it, how heartily a plain and nourishing variety of food is enjoyed by those who live with reasonable simplicity. It is easier in every way. All feel much better and more good natured, with no unreasonable cravings for confectionery, pickles, or stimulants. It lightens the care of children wonderfully. It makes the cooking more simple and easy, and, last but not least, it saves the doctor's bills.

A Canvas Chair.

While on a visit to some friends in the country, not long ago, we made the acquaintance of a chair which was so easy, cool, and altogether suited for summer use, that we give an engraving of it, for the benefit of other friends in the country. An explanation of its parts is scarcely necessary, as it can be easily understood from the figure. The legs cross as in a camp stool, two of them being long, and with the canvas, forming the high back to the chair. Two braces which are attached near the center of the back are joined by a cross-piece, which fits into notches seen at the rear, and by moving



AN EASY SUMMER CHAIR.

the braces up or down, the back may be brought nearly upright, or horizontal. When not in use, the chair may be folded up so that it will occupy but a small space. If the chair is patented, we failed to see the mark which the law directs shall be put on to indicate that such is the case.

A Hammock for the Household.

Merely the sight of a hammock hung in a cool and shady place is refreshing; it appears so comfortable and inviting. A hammock is not a sign of indolence, as some who think that they have no time for rest, except in the night, may regard it; it is rather an index of good sense upon the part of the owner who is aware that in the busiest life there are minutes that can be best spent in comfortable repose. Even on the farm in mid-summer there are half hours and quarter hours at noonday, or in the evening after the heat and work of the day are over, when the rest which an easy fitting hammock affords is just so much clear gain. Nothing that will give rest to the weary body and at the same time divert the mind is out of place in the farmer's household. If there are children in the family, there is nothing that can give them more amusement and comfort than a hammock, and the guests, whether of an hour or a day, will not object to the pleasure which it affords. Hammocks are not expensive, at least they do not now cost the price that they once did, when they were imported and their use was less general. Two or three dollars will now buy a very serviceable plain one; those that are elaborately made of course costing much more. In hanging the hammock it should be placed in the shade, either between two trees upon a lawn or upon the piazza and hung by hooks or screw-eyes placed in the columns or posts. If more particularly for children it should be somewhat lower than usual. For grown persons the hook which supports the head end should be six feet high and that for the foot four feet; this will afford the most desirable position for the occupant. The body of the hammock should be nearer the higher hook than it is to the other, and this may be secured by using a shorter piece of rope on the head end. There has been introduced recently a hammock hung to a portable frame; this frame folds up and occupies but very little space when not in use.

Of course, like most good things, the hammock may be abused—the comfortable rest which it gives may induce persons to remain too late out-of-doors, thus exposing them to the chilly or damp air of the night, but this is not the fault of the hammock, and no argument against its more general introduction as one of the wholesome comforts of the farmer's home during the hot months of summer.

Tents and Canopies for the Lawn.

To get out-of-doors in the hot days of summer is a common impulse. Even though the thermometer may show no marked difference in the temperature, the freedom of the open air is preferable to the confinement of the house. But to be out-of-doors one must also be in the shade. The natural shade of trees is pleasant occasionally, but rarely so desirable, take it altogether, as that of a tent. Trees are not always just where we wish the shade; the ground beneath them is often damp; and besides there are falling leaves, unwelcome insects, and other discomforts that make the tent preferable for a prolonged out-door sojourn. A tent may be made an important "annex" to the house in summer, and afford not only a pleasant place for reading, sewing, etc., but we have known it to do good service as the tea-room of the family during the hot days. The readiness with which children take to a tent as a play-ground is a sufficient evidence of its utility, were there no other. The simplest form of tent is a mere roof, without side walls, technically known as a "fly"—and this is in many cases all that is desired. Such a canopy is easily made and inexpensive. The materials out of which it may be made are various; common sheeting, heavy drilling, or duck, may be used; it will be found the cheapest in the end to get good substantial material that will last and look well for a number of seasons. The size of the canopy being decided upon, and the requisite material procured, all the making required will be to sew the breadths together and to make a broad hem at each end, with eyelet holes at each corner, and as many along the sides as there are to be ropes. If the material is heavy duck, the work must be done by a sail-maker, or by one who can use a sail-needle and "palm." Two upright poles, about 8 feet long, will be needed, and a light ridge-pole which will be as long as the width of the fly. An iron pin should be inserted in one end of each pole; this should be

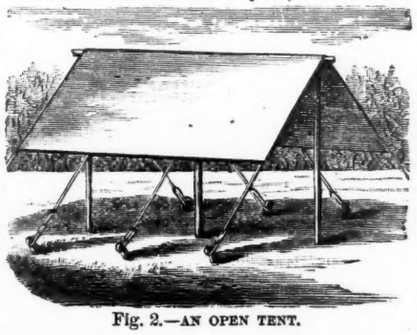


Fig. 2.—AN OPEN TENT.

long enough to pass through a hole in the ridge-pole, and it will be all the better if it pass through the ridge-pole and project a short distance to allow an eyelet in the middle of the edge of the canvas to go over it. This is not always done, but will add much to the firmness of the "structure." Guy-lines or ropes, for holding the canopy in its position, must be provided. These are secured to the edges or "eaves" by passing through an eyelet hole and making a knot in the end. Tent pins will be needed, as many as there are ropes; these are strips of hard-wood, pointed, for driving into the ground, and with a notch near the upper end for holding the guy-lines. For convenient tightening and loosening the ropes, it is well to provide each with a "becket," which is piece of hard-wood, about 4 inches long and an inch wide, with a hole in each end, as in figure 1. The end of the guy-rope is put through the holes and a knot made.

Fig. 1.

The open tent is now ready to pitch, and when in position is as shown in figure 2. In this form of tent the ends are entirely open, but end pieces may be added with but very little trouble and expense, and the tent is much more complete. After the pitch of the main part has been decided upon, the cloth for the ends is cut, so that it will fit upon the open end, as shown in figure 3. This piece may be kept separate and adjusted by lace strings passing through eyelets, or sewn fast, as desired. The pitch of the end piece should be the same as that

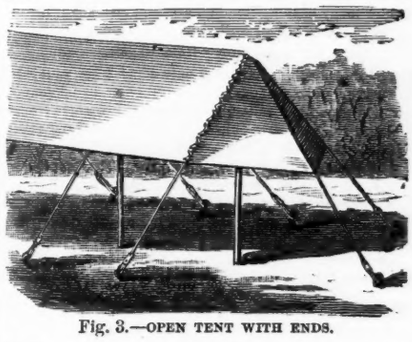


Fig. 3.—OPEN TENT WITH ENDS.

of the sides, and the bottom should come in the same plane. A single rope and pin will be needed to keep the ends in place. Those who prefer greater seclusion in their lawn tent, will find it in

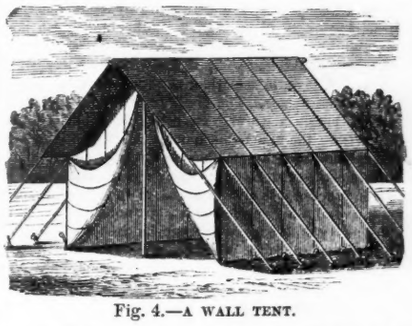


Fig. 4.—A WALL TENT.

the Wall Tent, shown in figure 4. They can be made of any size; and if of heavy material, can be used for "camping out." A wall tent complete has over it a fly, made just like the canopy first described. This makes the tent much cooler, and in heavy rains breaks the force of the storm and prevents leaking. A small Palmetto Tent, more especially adapted for children, is shown in figure 5, the construction of which can be easily seen from the engraving. The cost of it is small, in comparison with the amount of pleasure it can give the little ones, where they may "keep house all to themselves." If the tent is to remain for some weeks, it will add greatly to the comfort of those who use it to have it furnished with a floor. If the needed sills or sleepers and boards are cut the right length and put together with screws instead of nails, the floor will last for several years. In the suggestions for making a tent we have had shade and shelter only in view, but either style is capable of ornamentation; alternate strips of blue and white or red and white may be used, and the edges can be finished

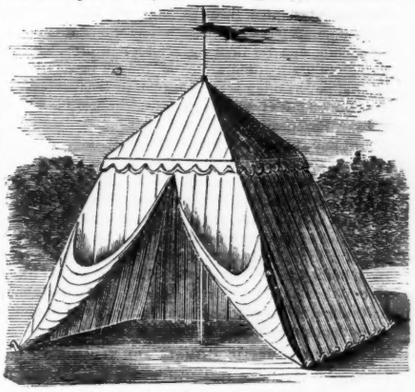


Fig. 5.—SMALL PALMETTO TENT.

by a scolloped border, as indicated in figure 5. Besides small flags may be successfully introduced.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks.

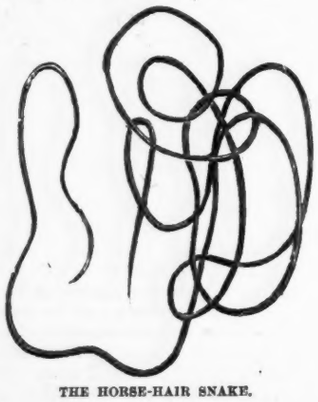
This month we will change our "Talks" somewhat, and instead of the mechanical forces of nature, have something to say about a living object. I do not know how many have written me, first and last, about the curious object generally known as

THE HORSE-HAIR SNAKE,

and the questions have not only come from youngsters, but from older persons. There is often to be found in shallow pools of water, and sometimes in horse troughs, a very long, slender object, curiously coiled and twisted upon itself, which has a very sluggish movement, but still enough to show that it is alive. The engraving, of the natural size, shows the so-called "Snake" to be a worm scarcely larger than a horse-hair, and about a foot long; being of small size, and frequently appearing in horse-troughs, many have supposed that it came from a horse-hair. Many people really believe that the hair from a horse's tail, after long soaking in water, can somehow "turn into" a snake. Indeed, I have known a person to keep a horse-hair in a bottle of water, expecting that it would

TURN INTO A SNAKE.

Many of the letters about it ask if the thing really comes from a hair, showing how widespread is this belief. Others simply ask what it is. Now this creature no more comes from a horse-hair than does a mud-turtle from a boot-jack. It is a creature by itself, small, it is true, but is as distinct as any other and much larger animal. Naturalists have not yet quite learned all about this Hair Snake, but so far as known, its history, rightly looked at, is quite as curious as if the creature really did come from a hair. The creature is not in any sense a snake, but is a worm. Its scientific name is *Gordius aquaticus;* the first name having reference to the "Gordian Knot," the animal having a way of twisting itself up almost inextricably; its specific name, *aquaticus*, was given because it is always found in the water, there being several other species which are not aquatic. These worms lay their eggs, which are hatched, and the young Gordiuses, in some manner, find their way into the bodies of Grasshoppers, Crickets, Locusts, and Water Beetles, being probably taken in with their food. Inside of these insects, like tape worms in large animals, they live and grow, and when they have reached their full



THE HORSE-HAIR SNAKE.

size, after having lived upon the food which these insects have taken for themselves, they at length leave the host that has entertained them so long, and are fortunate if they make their escape near water, where they can live for a while and lay their eggs for a new crop. A friend who gives much attention to the study of insects, informs me that he has often seen these "Hair Snakes" coming from the bodies of crickets, and can confirm the observations of European naturalists.

That one animal can live within the body of another may be new to you. Such animals are called *Entozoa*, a word from the Greek, meaning *within an animal*. There is a very large class of creatures that thus pass the whole or a part of their lives, it may be within the stomach and intestines of another animal, or it may be in some other part, the liver, the brain, and various other organs, affording a home for these creatures. That an animal like the Hair Worm should live within the body of a Grasshopper or Cricket, is indeed very strange, but it is something more than strange, such knowledge is useful.

OUR DOMESTIC ANIMALS ARE TROUBLED

by various creatures that live within them. The Hair Worm, it is said, does not injure the Grasshopper, though it would not be of much consequence if it did, but with our domestic animals, while some of the Entozoa cause little or no trouble, others, when in great numbers, make them ill, and even kill them. You will find on page 308 an account of the Fluke; the creature that causes in sheep the fatal disease known as "Rot." I think that all of you who are old enough to read about this *Gordius*, will understand that story of the Fluke. This creature, the Fluke, is said to belong to a very low order of animals, as its "make-up" is very simple. If it is simple in itself, it makes two different animals, two that are much higher in the scale, serve as its nurses. Early in the life of the Fluke, a little snail takes care of it, but it soon wants better food than the snail can furnish. The snail in search of food crawls upon the grass in a wet place; a sheep in search of food eats the grass, and without intending it, takes the snail also. The snail of course dies, but the little Fluke has found just the place it wanted—if such creatures have wants—and it goes on and causes all the trouble described in the article upon Sheep Rot. There are other Entozoa which have even more strange ways of living; and I may describe some of them another time, but what I wish to point out to you is this:

SUCH STUDIES ARE USEFUL.

Useful not only because they show some of the wonders of animal life, and increase our knowledge, but have a real money usefulness. The naturalist who discovered that the young Fluke had the little snail for a nurse, added many hundreds of thousands of dollars to the wealth of farmers. He pointed out how the Fluke found its way into the sheep. No Snails, no Fluke, no wet pasture, no snails, and the preventive of the disease, is to keep sheep away from wet pastures. What a trifle it seems, to look at it in one light, but how important if we look at its usefulness to every farmer who keeps sheep! You may think I have wandered some distance, in going from Hair Worms to Flukes, but though they look so unlike, they are closely related; both are worms; both are Entozoa, or dwellers within other animals. I must tell you one more curious thing about the Gordius or Hair Worm. When the pool in which it happens to be dries up,

THE WORM DOES NOT DIE,

but, as we may say, goes to sleep, and waits until water comes again. How long it can wait, I do not know, but an Italian naturalist put one away in a drawer, where it was forgotten for three years, and when at the end of that time it was placed in water, it became as lively as ever.

My (The Doctor's Correspondence)

has not appeared for a few months, for the reason that most of the questions were answered in one way or an other in other parts of the paper. It often happens that a boy or a girl asks about something which is very much like what an older person has asked about. For example, here is "J. H. N." in Nebraska, who would like to know

ABOUT CANARY, OR BIRD SEED,

what kind of a plant it grows upon, and if he could raise it himself, as it is sometimes very difficult to get where he lives. Now this is just such a question as an older person might ask, and when I know that such an inquiry has been answered in the other parts of the paper, I do not care to put another in your columns. But as to Canary seed, it is the seed of a grass which has a very close head, not long and slender like a head of Timothy, but short and egg-shaped. It is, like the birds which eat most of it, a native of the Canary Islands, but the supply for this country comes mostly from Southern Europe, and is grown more or less in Germany and England. There will be no difficulty in growing it, for the Canary-Grass makes itself quite at home in this country; where the litter from bird-cages is thrown out, the plants come up, and it is not at all rare to find them in waste places. You may sow it early in the spring, either broadcast or in drills a foot apart; cut it when the seeds begin to ripen. It is a food that all cage-birds like—at least all the singing birds....But some questions are not so easily disposed of. Here is one who would like to know about

THE MIDSUMMER NIGHT'S SONG.

That song or sound every one of you must have noticed. What a wonderful sound it is: The chirps, the hums, the buzzes of a myriad of crickets, locusts, and I do not know what other insects, all blending to make that sound, always to be heard on a warm summer's night. It is a peculiar dull roar, serving as the base to the tenor chirp of of some near-by cricket, or the monotonous song of Mrs. Katy-did. But I did not set out to write about the sound, but I was thinking how much pleasanter it was to listen to it than it is to go in-doors to write. I am very sure that with cool evenings my budget of letters will increase in size. Sometimes the parents send questions to "the Doctor," and now and then I answer in the Boys' and Girls' Columns questions not especially intended for me.

A FOSSIL TOOTH,

came safely to our hands, and is not forgotten. I suppose it to be the tooth of some animal, the kind of which is no longer living, but though I have engravings of many such teeth, I find none quite like this. When I come across some geologist who studies such things, I will try to find out the name of the animal.

Picture Puzzle.

This is a queer kind of picture. The ox has some trouble with its head, as if some one was holding it back to keep him from eating the food in the pan that is for the dog. It may be that there is some one between the

two animals, and is keeping them from quarrelling. Is it moonlight? It may be that the obscure light of evening makes it more difficult to see the whole of the picture. To many of our readers, and perhaps all, the "picture in the picture," may be as plain as day. We hope for no trouble in finding what is to be seen.

Our Puzzle-Box.

WORD-MAKING.

(For explanation, see similar puzzle in the April number.)

1. List of words: lion, double, rat, beast, elm, matter, to; letters to be added, R, D. (Find the word in the above list, to which the letters R, D, may be added, to form another word by transposition.)
2. List: house, residence, future, tavern, local, tip; letters, O, H.
3. List: actor, basket, bust, model, gull, rim, pen; letters, R, A.
4. List: boat, steam, trotter, agate, little, course, miser; letters, Y, N.
5. List: Traveller, forest, broom, dust, clean, billow; letters, C. I.

CONCEALED QUOTATION.

(The original sentence may be found in Shakspeare's *Troilus and Cresida.*)

How did I remember? Well, I keep a diary, and there it says—"the thing was made with hard rope, and girdled with a band of Roman steel. In it he had Pygmalion's ivory woman, elegantly carved, besides a miscellaneous assortment of rings, hooks, instruments of torture and locks of human hair tied up with solferino ribbon."

DEFINITION PUZZLES.

(In each of the following definitions you can pick out the letters needed to spell the word that is defined. *Example.*—"One devoted to any service." Now for this you might think the word "servant" would answer, as you can find in the sentence the required letters; but "servant" is not so defined in the dictionary. The word is "votary."

1. Odd and antique. 2. An instrument or vessel.
3. One suddenly raised to wealth or power.
4. Produce of vines, and the time of grape gathering.
5. A word having the same, or very nearly the same meaning as another.
6. Simple; an inhabitant of the country.
7. Adorned; beautiful. 8. Destruction.

CHARADE.

My first is eaten, oft, with milk,
'Tis deemed by many, good;
And in my next the children meet
To take their daily food.

My whole is deemed a luxury
By many an epicure,
And yet it is a common thing,
You've seen it I am sure.

SCATTERED SQUARE.

(In the following verse, you will find in the first line the letters needed for the first word of the square, and, of course, the initials of the four words. In the second line of the verse may be found the letters for the second word of the square; in the third line, the third word; and in the fourth, the fourth. In the first line, for instance, you may find letters with which to make the words—heat, reap, pear, pier, race, ache, etc. And it may not be quite so easy to select the right one as you imagine.)

The peaches are ripe,
And red on the trees;
The flowers are perfumed
And scented the breeze.

CROSS-WORD.

My first is in cleaver but not in knife,
My next is in bagpipe but not in fife,
My third is in pity but not in ruth,
My fourth is in infant but not in youth,
My fifth is in fragment but not in piece,
My sixth is in poultry but not in geese,
My seventh is in bolster but not in bed,
My eighth is in yellow but not in red,
My ninth is in stay but not in bide:
My whole is nothing but empty pride. MAGGIE.

SUBTRACTIONS.

1. Take one from four and leave one.
2. Take two from five and leave one.
3. Take three from five and leave five.
4. Take two from three and leave five.
5. Take one from six and leave eight.
6. Take one from six and leave nine.

SQUARE WORD.

1. To desire.
2. A gem.
3. A household article.
4. A girl's name.

F. CLARK.

NUMERICAL ENIGMAS.

1. I am composed of 29 letters:
My 5, 10, 29, 15, 25, 8, describes a wheel in motion.
My 19, 13, 16, 22, 1, is an article of apparel.
My 17, 18, 11, 6, 14, 3, 2, 7, means this or that.
My 12, 28, 26, 20, 25, 21, is imaginative composition.
My 23, 6, 9, 4, 7, is extreme.
My 24, 17, 27, is heard of grasses and grain.
My whole cautions us against false pretenses.

2. I am composed of 11 letters:
My 3, 2, 10, 11, is much used by dressmakers.
My 6, 2, 2, 4, is a corner.
My 8, 5, 6, is a receptacle.
My 7, 10, 9, 1, is surly.
My whole is a bird. G. W. EVANS.

POSITIVES AND COMPARATIVES.

(*Example.*—Grain, an angle. Corn, corner.)

1. Goods found but not claimed; a thin cake.
2. A violent motion; a country in Europe.
3. What blasters do; to meddle.
4. An article of food; a tool.
5. To wait on; easily injured.
6. A number; general course.
7. A coin; the middle.
8. To clothe; a kitchen table.

ANAGRAMS.

1. Gift protegé.
2. B. Hunter.
3. Irene Post.
4. Rant scene.
5. Send rim.
6. Sent charm.
7. Drew, read.
8. Very idle.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

NUMERICAL ENIGMA.—This one half human, one half divine.

ANAGRAMS.—1. Naturalist. 2. Statesmanship. 3. Coagulates. 4. Youngster. 5. Unobserved. 6. Wretchedness. 7. Negative. 8. Disconcerted. 9. Examined (the anagram was erroneous, and the author apologizes). 10. Delivery.

CHANGES.—1. Heir, air. 2. Peer, pier. 3. Gilt, guilt. 4. Cousin, cozzen. 5. Sees, seize. 6. Not, knot.

TRANSPOSITIONS.—1. Sole, lose (shad, dash). 2. Dame, made. 3. Acre, race. 4. Runt, turn (hare, hear). 5. Vell, live. 6. Mite, emit.

ALPHABETICAL ARITHMETIC.—3014)91765082(30446. *Key—New Codfish.*

HALF SQUARE.

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O S E M I T E
O L E V A N O
S E J O I N
E V O R A
M A I A
I N N
T O
E

ANIMALS ENIGMATICALLY EXPRESSED.—1. Mastodon. 2. Catamount. 3. Chinchilla. 4. Hippopotamus. 5. Panther. 6. Donkey. 7. Badger. 8. Goat.

CONCEALED NAMES OF POETS.—1. Brown. 2. Coke. 3. Cowper. 4. Scott. 5. Gay. 6. Logan. 7. Lowell. 8. Hall.

COUNTIES IN GEORGIA ENIGMATICALLY EXPRESSED.—1. Newton. 2. Chatham. 3. Stewart. 4. Campbell. 5. Upson. 6. Carroll. 7. Crawford. 8. Baldwin.

SCATTERED SQUARE WORDS.—

ARTS SHOT PILL AILS AIRS STAR
RIOT HARE IDEA IDEA IDEA TIRE
TOLE ORES LEAN LENT REAM ARTS
STEM TEST LANE SATE SAME REST

DOUBLE ACROSTIC.

Ethan—Allen.
E— arek —A
T— rowe —L
H— ul —L
A— gat —E
N—apoleo—N

PUZZLE.—Zone (from "dozen."

DECAPITATION.—March, arch, char, charm, harm, arm, mar.

CROSS-WORD.—Friendship.

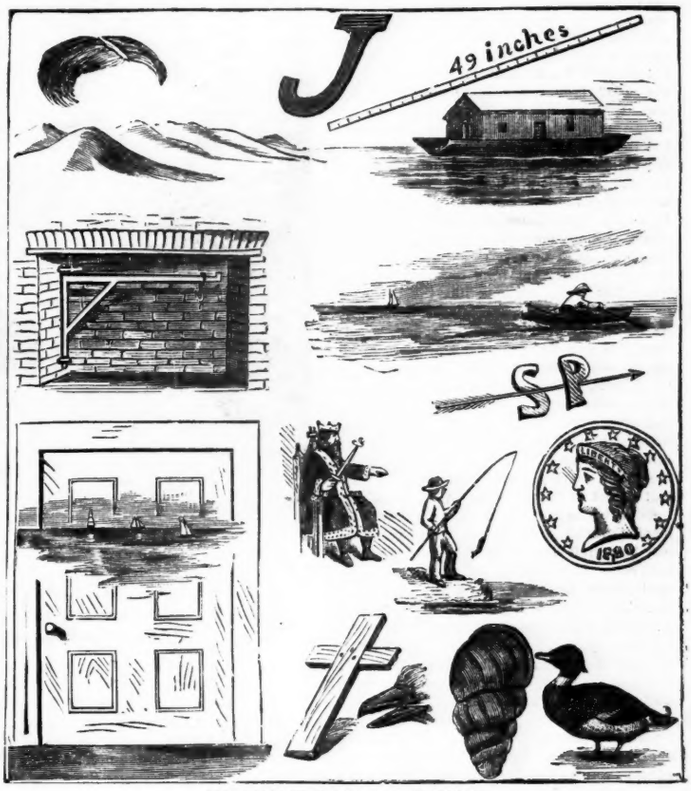
ILLUSTRATED REBUS No. 477.—Small leaks sink great ships.

No. 479. Illustrated Rebus.—A few words of wisdom worthy of study by both old and young.

Among the Birds.

This morning early, in fact, before we were up, the birds were out and giving their free open air concert, to all who would listen. The thoughts that this mingled morning song of gladness brought to us, were various; but among others, this; that perhaps the boys and girls of our *American Agriculturist* family, would like to have a Bird Rebus; and so we have had the artist draw some birds in his peculiar way. It is our work to give a little description of each, and leave it for the young readers to make out the rest.

The first bird we will notice, is pretty generally distributed throughout the country, especially near large bodies of water. It prefers the quiet and solitude of the forest during the day, and is most easily found in early morning, standing motionless by the side of a pond, etc., watching patiently for a fish, which, when within reach, is caught in the long bill, with about the quickness of lightning. Its nests are made in high forks of trees in swamps, where it is difficult for naughty or other boys to get the eggs or young birds. It may be said that the bird is of a bluish color, and has very long legs.—No. 2 is one of the common smaller birds, with rather highly colored plumage, sly, cunning, and very restless; in fact, a noisy bird, and one not at all liked by other members of the feathered tribe. It is unsafe to always judge of an object entirely from external appearances—so here the beautiful garb of this bird is not a correct index of the heart within. It is a robber of other birds' nests, sucking the eggs, and devouring the young, at the same time being attractive in form and coloring, and graceful in movement.—No. 3 is a game bird, and one that every hunter likes to find in abundance. When found in the deep forest, these large reddish-brown birds are very tame and unsuspicious, but in older parts of the country, they get very wild and shy, from frequent contact with the sportsman. The way a group of these birds will retreat and hide themselves when discovered, is quite surprising. The nest is built of brush and leaves, and upon the ground. On the wing this bird is very swift, and its flight is far from a silent one. Like little boys on campaign years, they do a considerable drumming.—No. 4 is one of the large birds of prey; that is, a bird which lives upon animals, and those often of considerable size. Stories are told of severe struggles between this bird and men, who are bold enough to go into the solitary mountain regions, where they abound. The head, neck, and front of the breast are bare of feathers, giving the great, ugly bird a savage and disagreeable appearance. No nests are made, but instead the two eggs, about four inches long, are laid upon the bare rock, with a few sticks around them.—No. 5 is a common bird in the United States; it builds its nest in holes, which it digs in sand banks, along the borders of streams. The hole is often 6 or 8 feet in length, and very crooked. Its food is mostly fish, which it obtains by diving. The note of this bird is loud and harsh, but when heard above the roar of the water-fall, is not disagreeable.—No. 6 inhabits the pine forests of the Northern and Middle States, and derives its food from the pine cones during the cold weather. The bill of this bird is peculiar, but so well adapted for its work, that nature in making it of an unusual form, knew well what she was about. During deep snows, they often gather around the hunters' and wood-choppers' cabins, in great numbers.—No. 7 raises its young in the neighborhood of fresh water lakes, in the interior of the United States, and is afterwards found along the sea coast in autumn. The nests are built in the tops of broken trees, out of danger from rising water, and egg-loving animals.—No. 8 includes a number of birds under the same name. The one we have selected, is a common and well-known kind, which comes North, from its warm summer quarters in the South, near the first of April. About the middle of May a nest is built in a lilac bush under the window, or in some other handy bush or tree. The nest is constructed of fine twigs, grasses, etc., and neatly lined with horse hairs. It is in these little nests, that the mean cow-bird lays her great white egg, which is hatched out by the little foster mother, to the great discomfort of her own little ones.—No. 9 is noted for getting up early in the morning, and does it by making circles in its flight, which grow larger and larger, as it gets higher and higher. All this time it is said to be singing a beautiful morning song. We say, "it is said," because this bird does not exist in America, but is famous in the countries of Europe. There is a kind in this country, that is frequently found in the meadows, but as far as we know, it has no enviable reputation for "going out to meet the sun,"—in fact, it is a low flyer, but pleasant in its singing.—No. 10, the last bird we will mention, is one noted for its great strength, it being a large "bird of prey." It is now seldom seen east of the Rocky Mountains, and is rare everywhere. This noble bird, over three feet in length, is remarkable for its long sustained flight, which it performs with the greatest ease and grace. It seems fitting that we should close our notice of the birds, with one which holds his high place, as the "King of Birds."



SOME OLD BIRDS IN A NEW FORM.

The Spring Beetle, or "Blacksmith."—A queer looking beetle came in a box by mail, which has been sent, as a great many other insects are, for a name and a description—that is, the sender wishes us to tell about it. This beetle is of a peculiar ashy-black color, with two large velvety spots on its back, which are mistaken for enormous eyes by those who do not observe that they are not in the head. The real eyes will be found in the head, and just back of the long feelers that are so finely jointed and look somewhat like a string of beads. If you happen to catch one of these beetles, as you may at this time of year, and place it on its back, you will see some fun. After a short time with a clicking sound the beetle will throw itself into the air and come down on its feet, and start off as if nothing uncommon had happened.

Harry and His Horse.

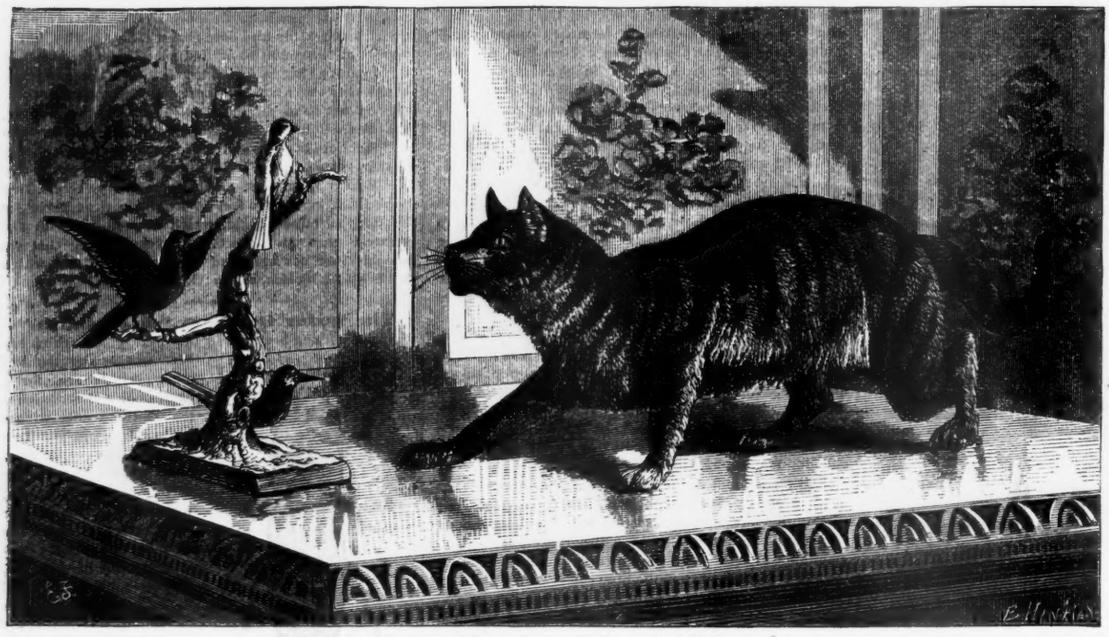
It is a little more natural for a farmer boy to want a horse than for him to want to wait until he is old enough to take care of it. I felt very big when I could be trusted with a horse out of sight of any other person, with my "red top" boots, and a real, live horse; but when I look back and think of it, I now see that the horse which I thought I must hold with all my might or he would run away, was a very old and gentle one that rather cared for me than I for him. He would not have run away for all the world—he had lived too long to see any fun in being fast, and to move at all was a matter of great exertion and self-sacrifice. When boys can not get hold of a real, live horse, they do the next best thing, which is, to have a wooden one. Of wooden horses there have been many sorts—perhaps more kinds than of real horses; but the ones that are the best, that is, nearest the child's heart, are those which he makes himself. The picture here given shows what a little friend of ours can do in the way of getting up a "play horse" that furnishes him a world of amusement for a time. It is a very crooked branch of a very crooked tree, with the limbs coming out from the body in such places that they really look like the legs of a horse—at least they are of the same number. As for the head, though a little slender perhaps, it is seen to be the head. Not so much can be said of the tail. Well! some horses are "bob tails," though they are not so common now as some years ago. Harry has evidently had great sport with his pony, and has just brought him in from a drive, and has hitched him to a post—it is not always safe to hitch them thus, as they may frighten other horses that do not easily recognize their wooden representatives as horses. It is well to throw a blanket over him, as he may be sweaty, and there may be a draft blowing that might bring on a hard cold. How intently the large, rather, queer-shaped eyed animal is feeding from the great, banded mitten. The oats, it is hoped, will make "Charlie" more fleshy than at present—though he is doubtless a race horse, and can not be expected to carry much extra flesh. The only fault I can find with the care of the horse is the lack of care of the drum—it is feared that with one single well directed kick the music-box will come to an untimely end, and in this, the year for drums. Harry in his haste for his own dinner—but his riding has made him very hungry—has overlooked the drum, but it is hoped that when he returns for his afternoon ride he will find everything all right. How Harry would feel to find his horse gone—to find that the hitching-strap had been broken, and "Charlie" had left for parts unknown. With such a tight hitch, and such a good supply of food so close at hand, it may be expected that everything will be in order, while in waiting for the return of the young horseman. If the horse gets away under such circumstances, may it not be a sort of evidence that he has been led astray by some other boy perhaps? The care which a boy will thus bestow upon a lifeless, and some may even say ugly, stick, is to be highly praised, it is but the youthful overflow of a regard for the feelings of others; and whatever will develop that manly trait, even if it is the feeding of make-believe oats to a make-believe horse, should be encouraged. The boy that takes the best care of the toy that he makes or has had given him, will make the kindest, best, and most humane of men. For my part I see a good side in Harry in his giving his horse a safe place and a good feed before he goes to his own dinner, in waiting for him. U. H.

THE WOODEN HORSE AT DINNER.

The Cat and the Birds.

Cats and dogs, it is generally said, do not get along well together, but I have seen them so thoughtful of each other's interests and feelings, that there seemed to be a sort of affection between them: as if Old Bruno loved Tabby, and Tabby loved Old Bruno. Such cases are rather rare, it is true, and when we do see them they give us much pleasure. But when it comes to cats and birds the feeling is somewhat different. The cat seems to feel that a bird is made to be caught and eaten, and on the other hand the bird acts as if it thought that to keep out of the reach of the cat is the safest thing to do if its life is valued. There have been cats that, by severe training, have been made to feel that a bird's life is not for her to take; but it is an unnatural state of the cat's mind, and not to be depended upon. The time may come when the cat and the bird will lie down together; but it seems a long way off.—As cats now are, if they do lie down together, you may be sure that the bird will be on the inside of the cat. The instinct of animals is very strong; that something which impels the lion to eat the deer, and the bear to find its living animal food, is by nature so strong that any thing like "Daniel in the lions' den" will always be a striking story to children, because it is so unnatural and uncommon. The picture, which is here given, teaches a great deal, while it is at the same time pleasing and almost funny. Here is a table, partly shown, upon which a stand of stuffed birds has been left, we may suppose for a short time, with no one in the room—save the household cat. "Old Pussy," that at most times would not do the wrong thing—would not get at the cream or milk, etc., because her "bringing up" has taught her better things, sees these birds so plump and life-like within her reach. With the quiet and stealth of a tiger, she creeps upon her prey! What a meal of nice tender bird she thinks is in store for her, and with this one thought of securing it, we find her upon the table, and with the greatest caution approaches the game, step by step. But now her eyes show that she has some doubt, as she pauses and looks half intent, half deceived, upon the feathered creatures that are quite too tame for birds of flesh and blood. They do not flutter their open wings or move their little heads, but have their eyes fixed with a glassy stare upon the coming foe. Because we love the little harmless birds more than the larger cat, whose nature it is to catch them—and for which we can not blame her—we all enjoy the picture, and are apt to exult in the safety of the work of the bird-stuffers, and have but a grain of pity for "Pussy," who has had her practice in bird-catching for her pains. In the supposed cruelty of the cat we are apt to forget that the bird, when alive, did not hesitate to take the life of an insect, with just as much cruelty, and while the cat is catching one bird to satisfy its hunger, the bird is perhaps killing a hundred, or a thousand, insects, to preserve its life. But the cat must retire from her high place on the table, where she should not be, and that quickly too, when the owner returns, with the feeling that all things in this world are not what they at first seem.

UNCLE HAL.



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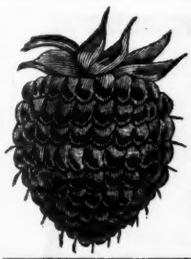

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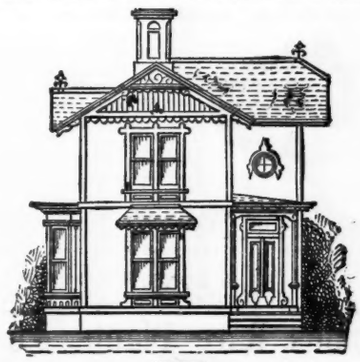

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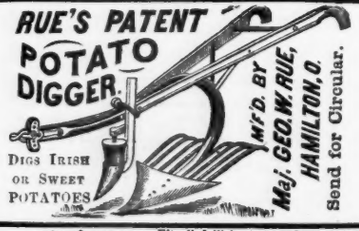

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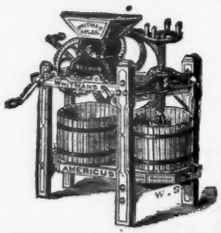

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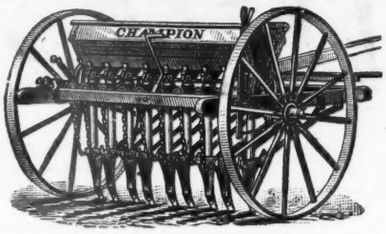

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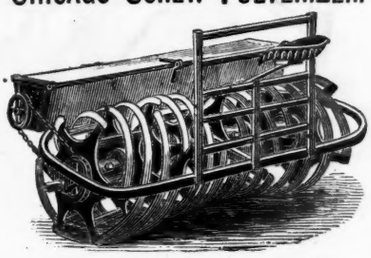

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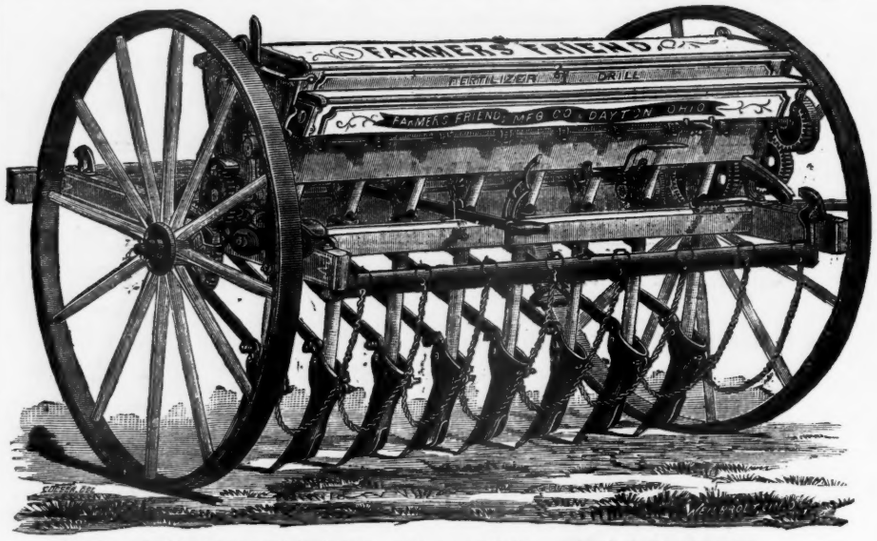

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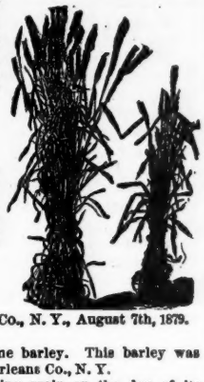
Our works are among the most complete and extensive in the country, and have every appliance to enable us to furnish Standard Fertilizers at the Lowest Price. Our machinery is of modern and improved construction, and our goods are made under the guidance of an able chemist, who inspects every lot before being placed on the market. With the large amount of capital invested in the HOMESTEAD, we are much more interested in having its high character maintained than any individual purchaser could possibly be; and this fact alone should assure the farmer that every pound he buys is all that is represented.

As manufacturers of Animal Charcoal, we have at our hands the most valuable material used in making fertilizers—viz., Bone Black Dust. This fertilizing substance contains eighty per cent. of phosphate of lime, against fifty-five per cent. contained in raw bones; and its well known value commands so high a price in the European markets that but very few manufacturers of fertilizers in this country use it. Although the HOMESTEAD Fertilizer costs us more to manufacture than if prepared of the materials generally used, we shall continue its present high standard, and place on the market a genuine, pure Bone Black Phosphate.



ALMONT, MICH., June 18th, 1879.

MICHIGAN CARBON WORKS, DETROIT, MICH.:

Gentlemen:—Please notice the enclosed photograph of wheat cut from the same length of drill, seven inches apart—superphosphate and no superphosphate. Draw your own conclusions which is which. Of course, this is showing more difference than the field will average; but this shows what superphosphate will do on very poor soil. This was cut from a very poor spot, but each having the same chance, with the one exception. It was cut 12th of June. Shows the earliness of that fertilized. I have the best piece of barley in this section—100 lbs. superphosphate per acre sown on wheat stubble. The best farmers here are taking note of these things.

Very truly,

F. J. GROAT.

MEDINA, ORLEANS CO., N. Y., August 7th, 1879.

MICHIGAN CARBON WORKS:

Gentlemen:—Enclosed please find a photograph of some barley. This barley was grown on A. H. Poler's farm, four miles south of Medina, Orleans Co., N. Y.

I made a frame four feet square and set it in the standing grain on the day of its being cut. I then cut and gathered all that stood within the frame of each, where there was phosphate and where there was no phosphate. I let it lay in the sun one day to cure, then weighed each bundle as you see it on the photograph.

The phosphate was put down with the seed with a fertilizing drill, the teeth being six inches apart. These bundles were cut side by side, only six inches apart. The one on the left of the photograph had no phosphate, and weighed twelve ounces. The one on the right had one hundred and forty pounds of the Homestead Superphosphate to the acre, and weighed two pounds and fourteen ounces to the four feet square. *This is correct.*

A. H. Poler also experimented on corn, potatoes, and winter wheat, with as good results on each as on his barley. Of course he has not harvested his corn; but it stands sixteen inches higher than the rest of the corn and earing one-half better.

Yours, respectfully,

GEO. W. POLER.

ACTUAL RESULT AT OUR SEED-FARM ON LETTUCE SEED.

Homestead produced	583 lbs. per acre.	116 lbs. of lettuce seed, at $1.25	$145 00
Where none was used	467 " "	560 lbs. of Homestead, at $40 per ton	11 20
Difference favor of Homestead	116 " "	Actual profit per acre	$133 80

D. M. FERRY & CO.

Send for Circulars, giving full reports of results and all particulars in regard to use.

☞In places where we have no authorized agent a barrel of 200 pounds will be sent on receipt of $4.

ODORLESS FLORALIS.

Prepared expressly for Lawns, Flower Gardens, Pot and House Plants.

DIRECTIONS.—Use three tablespoonfuls of the manure to a gallon of water. Steep twelve hours before using, and keep well stirred while being applied. Do not apply oftener than once in two weeks.

PRICES, { Box containing 10 lbs. $1 00; " " 25 lbs. 2 00; " " 50 lbs. 4 00

Sent anywhere in the United States or Canada, by express or freight, on receipt of cash orders.

MICHIGAN CARBON WORKS, Detroit, Mich.

GOOD AGENTS WANTED IN EVERY TOWN.

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Now is the time to order for **FODDER CORN, HUNGARIAN GRASS, BUCKWHEAT, TOBACCO, BEANS, TURNIPS, etc.** For Pamphlets and Price Lists send to

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Excelsior Fertilizer Company,

ALLIANCE, OHIO.

I. X. L. SPRING TUG LINK

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D. RISHER & CO.,

Corner of 4th and Wood Streets, Pittsburgh, Pa.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from Page 300.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

Bound Copies of volume 38, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

Terms to New South Wales, New Zealand, Australia, Africa, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

Grain Drills.—The even sowing of the grain at the desired depth, the proper covering of every grain, and therefore a saving in seed, are some of the important points in favor of using grain drills. Within a few years a new value has attached to these implements: the grain is sown in rows, and thus allows of the use of a cultivator, or Wheat Hoe. The importance of stirring the soil between the rows of wheat is now becoming well understood; and the practice of hoeing wheat is on the increase. In Sept. last we illustrated a home-made wheat hoe, and there are some implements for the purpose now offered by their makers. With the more general use of the wheat hoe the method of broadcast sowing must pass away. Except on new land, where the stumps are thick, there is nothing in favor of the broadcast sowing.

Soil and Dry Weather.—"Heavy crops succeed a season of drouth." There are good reasons for the truthfulness of the above remark. In the first place, a wet season, especially one with heavy drenching rains, causes the soluble food materials to be carried down deep into the soil, or even out of reach of the plants, if the subsoil is very porous. On the other hand, during a drouth, a reverse action takes place; then, as the surface moisture is evaporated the loss is made good from below; the water in the soil is brought up by capillary attraction, and with it the salts of potash and other fertilizing materials are carried up towards the surface of the soil and left there as the water is evaporated. It is upon this principle that the alkali covering on the western plains is produced. During a drouth the vegetation is not vigorous, and but a small crop is removed from the soil; the soil during dry weather is, so to speak, having a holiday—a sort of half-way summer fallow—in which food elements are forming in the soil, and not being used up by the plants because it is too dry for them to do much at growing. With such a preparation it is natural that the crop the next season should be a good one, provided there is rain enough for the sown plants to grow.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending July 10th*, 1880, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 d's *this* m'th	396,000	6,281,000	4,889,000	79,000	307,000	1,331,000
22 d's *last* m'th	401,000	3,605,000	4,117,000	102,000	291,000	1,108,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 d's *this* m'th	412,000	23,956,000*	8,311,000*	138,000	——	2,504,000*
22 d's *last* m'th	347,000	23,794,000*	7,491,000*	156,000	——	2,337,000*

* Including sales for forward delivery.

2. *Comparison with same period at this time last year*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days 1880	396,000	6,281,000	4,889,000	79,000	307,000	1,331,000
23 days 1879	341,000	2,987,000	5,101,000	196,000	312,000	1,171,000

SALES.	*Flour.*	*Wheat.*	*Corn*	*Rye.*	*Barley.*	*Oats.*
24 days 1880	412,000	23,956,000	8,311,000	138,000	——	2,504,000
23 days 1879	456,000	8,148,000	8,439,000	289,000	——	1,393,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush
July 7, '80	1,520,213	440,977	73,367	25,425	623,115	216,075
June 7, '80	1,251,384	105,412	61,464	26,425	461,490	184,747
July 7, '79	1,159,019	1,917,747	60,147	45,099	211,662	138,610
July 11, '78	1,591,132	720,784	138,852	174,000	207,769	668,075

4. *Exports from New York, Jan. 1 to July 9.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
'80	1,930,093	28,283,258	24,468,581	993,650	271,000	282,300	205,500
'79	1,529,000	23,233,450	17,821,000	2,213,900	101,800	396,600	193,000
'78	1,299,200	22,978,000	14,317,700	2,220,600	1,512,200	1,202,300	290,000

CURRENT WHOLESALE PRICES.

	June 10.	July 12.
FLOUR—Super to Extra State ₱ bbl	$3 35 @ 5 00	$3 40 @ 4 60
" Super to Extra South'n.	3 35 @ 7 00	3 40 @ 7 00
" Extra Genesee	5 00 @ 6 25	4 75 @ 6 00
" Superfine Western	3 35 @ 4 50	3 40 @ 4 15
" Extra Western	4 00 @ 8 50	4 15 @ 8 50
" " Minnesota	4 10 @ 8 50	4 25 @ 8 50
RYE FLOUR, Superfine	4 60 @ 5 00	4 50 @ 5 00
CORN-MEAL	2 50 @ 3 15	2 50 @ 3 15
CORN-FLOUR, per bbl	2 90 @ 3 50	2 75 @ 3 25
OAT MEAL, ₱ bbl	4 50 @ 6 50	4 50 @ 6 50
WHEAT—All kinds of White	1 20 @ 1 30	1 10 @ 1 18½
" Red and Amber	1 15 @ 1 33	1 00 @ 1 27
" Spring	1 05 @ 1 22	1 00 @ 1 14
CORN—Yellow	55 @ 58	50 @ 51½
" White	55 @ 58	51 @ 54
" Mixed	52 @ 55	47 @ 50
OATS	39 @ 47½	34 @ 44
RYE	96 @ 98	78 @ 83
BARLEY	Nominal.	Nominal.
HAY—Bale, ₱ 100 lbs	70 @ 1 05	70 @ 1 10
STRAW, ₱ 100 lbs	50 @ 1 15	50 @ 1 10
COTTON—Middlings, ₱ lb	11¾ @ 12	11¾ @ 12
HOPS—Crop of 1879, ₱ lb	27 @ 40	25 @ 38
" " 1878, ₱ lb	7 @ 20	7 @ 15
" olds, ₱ lb	4 @ 12½	4 @ 10
FEATHERS—Live Geese, ₱ lb	45 @ 52½	45 @ 51½
SEED—Clover, West. & St. ₱ lb	6¾ @ 7¾	7 @ 7¾
" Timothy, ₱ bushel	2 40 @ 2 65	Nominal.
" Flax, ₱ bushel	1 40 @ 1 55	1 40 @ 1 45
TOBACCO, Kentucky, &c., ₱ lb	3 @ 14	3 @ 14
" Seed Leaf, ₱ lb	6 @ 45	6 @ 40
WOOL—Domestic Fleece, ₱ lb	28 @ 55	24 @ 52
" Domestic, pulled, ₱ lb	25 @ 56	22 @ 52
" California	18 @ 38	18 @ 35
TALLOW, ₱ lb	6 @ 6¾	6¾ @ 6¾
OIL-CAKE—₱ ton	32 50 @33 00	32 00 @32 50
PORK—Mess, ₱ barrel	11 35 @11 40	13 00 @13 50
" Extra Prime, ₱ barrel	9 50 @ 9 75	Nominal.
BEEF—Extra mess	10 00 @10 50	10 00 @ —
LARD, in tcs. & bbls, ₱ 100 lb	6 80 @ 7 40	7 05 @ 7 67½
BUTTER—State, ₱ lb	13 @ 21	16 @ 23
" Western, poor to fcy, lb	9 @ 20	12 @ 23
CHEESE	8 @ 12½	7 @ 9¼
EGGS—Fresh, ₱ dozen	10 @ 13	12½ @ 14½
POULTRY—Fowls, ₱ lb	8 @ 14	10 @ 15
" Chickens, ₱ lb	18 @ 34	16 @ 25
" " ₱ pair	35 @ 90	— @ —
" Roosters, ₱ lb	4 @ 6	6 @ 7
Capons, ₱ lb	18 @ 22	— @ —
Turkeys—₱ lb	8 @ 11	10 @ 13
Geese, ₱ pair	1 00 @ 1 50	1 12½ @ 1 62½
Geese, ₱ lb	— @ —	— @ —
Ducks, ₱ pair	50 @ 80	45 @ 60
" ₱ lb	— @ —	15 @ 20
PIGEONS, ₱ dozen	40 @ 2 50	70 @ 2 00
SNIPE, per doz	20 @ 2 00	1 75 @ 2 00
PEACHES, ₱ crate	— @ —	75 @ 4 00
PLUMS, ₱ qt	— @ —	5 @ 7
APPLES, ₱ barrel	2 00 @ 4 50	1 25 @ 3 50
" ₱ crate	— @ —	75 @ 2 00
GOOSEBERRIES, ₱ bushel	7 @ 10	1 25 @ 1 50
CHERRIES, ₱ lb	5 @ 15	4 @ 12
CURRANTS, ₱ lb	— @ —	4 @ 8
WHORTLEBERRIES, ₱ half bu	— @ —	2 50 @ 3 50
BLACKBERRIES, ₱ qt	— @ —	5 @ 10
RASPBERRIES, ₱ cup	— @ —	3 @ 7
POTATOES, new, per bbl	2 00 @ 5 00	50 @ 3 25
" ₱ bbl	1 00 @ 1 75	50 @ 1 25
" Sweet, ₱ bbl	— @ —	— @ —
TOMATOES, new, per box	60 @ 3 00	1 00 @ 4 50
TURNIPS ₱ bbl	75 @ 1 25	— @ —
" white, new, ₱ 100 bun	75 @ 2 00	2 00 @ 4 00
BEANS—₱ bushel	1 25 @ 1 75	1 25 @ 1 80
EGG PLANTS, ₱ crate	— @ —	1 25 @ 2 00
PEAS—Canada, in bond, ₱ bu	82 @ 85	— @ 85
" new, green, ₱ bag	— @ —	2 00 @ 3 50
" new, per bbl	2 00 @ 5 50	— @ —
CORN, GREEN ₱ 100	— @ —	50 @ 1 25
STRING BEANS, new, p. crate	75 @ 2 50	— @ —
" ₱ bag	— @ —	2 00 @ 2 75
CARROTS, ₱ bbl	1 50 @ 3 00	— @ —
BEETS, ₱ 100 bunches	1 50 @ 3 00	1 50 @ 3 00
CABBAGES, new, ₱ 100	5 00 @10 00	4 00 @10 00
ONIONS—₱ bbl	— @ —	4 00 @ 5 00
" ₱ crate	1 75 @ 3 00	— @ —
SQUASH, ₱ bbl	1 50 @ 2 00	1 25 @ 2 25
" ₱ crate	25 @ 50	— @ —
WATERMELONS, ₱ 100	— @ —	10 00 @35 00
SPINACH, ₱ bbl	50 @ 75	— @ —
ASPARAGUS, new, ₱ doz. bun	75 @ 1 75	— @ —
RADISHES, new ₱ 100 bun	1 00 @ 1 25	50 @ 1 50
CUCUMBERS, ₱ 100	— @ —	50 @ 1 50
" ₱ crate	1 75 @ 2 50	— @ —
LETTUCE, ₱ bbl	1 50 @ 2 75	1 75 @ 3 00
CAULIFLOWER, ₱ doz	— @ —	1 00 @ 4 00

An active and generally buoyant Stock Market; growing ease in Money; depression in Foreign Exchange; and extraordinarily free movements in the Produce line have been the prominent features of the past month. General merchandise has not been in much request, and has been irregular as to values, though the changes have not been very important....Comparatively little interest has been shown in Cotton, especially on speculative account, and the fluctuations in price have been within narrow limits....Wool has been attracting more attention, opening the month at easier figures, but leaving off more firmly. The more urgent offerings of Foreign formed a leading influence in causing the early depression. It has been noted that the fall in value of the past few months is most noticeable in the medium and low grades, and is especially evident in the decline on Super Pulled Wools, which, during the activity of the late Winter, reached a point higher in proportion than any other class. Good Supers, which in February commanded 62c.@65c., can now be bought for 42c.@45c., a shrinkage of over 30 per cent....Petroleum has been advanced sharply, closing buoyantly, on reduced offerings in the seaboard markets, and a more urgent inquiry from the export interest. ..Naval Stores varied little, on a slow trade. ..In the Provision line, Hog products have been quoted decidedly higher, and active; partly due to speculative influences; but largely to the extraordinary export drain, particularly for British and Continental markets. Beef irregular, and slow of sale. Butter has been recently in fair demand, at hardening rates. Cheese fell very materially in price, early in the month, under a pressure to realize, but has since rallied about 1¼@2c. ₱ lb from the lowest point, on a freer call for shipment. ....Hops have been quoted lower, as the available supplies have been more liberal, and holders more eager to place them, leading to increased activity....Unusual animation has been reported in the way of Breadstuffs, here, as well as at the interior, on more or less excited and disturbed markets; the tendency, early in the month, having been, as a rule, decidedly downward; while within a week or two, Wheat has rallied sharply, as influenced, mainly, by the reports from the West, of very unfavorable weather and resulting damage to the maturing crops. The heavy rains also were represented as causing much delay and trouble in preparing the harvested grain for market. On Friday, July 9th, business in Winter Wheat here was characterized by remarkable excitement and buoyancy, notably No. 2 Red, on which a further and very marked advance was made, especially on early deliveries, which, on very meagre offerings, were run up 5c.@7c. a bushel, as against operators having contracts to provide for, calling for deliveries within the first half of the current month; and options, in sympathy, gained about 2c.@3c. a bushel. Settlements to a limited extent of early deliveries were forced at the extreme figures. Subsequently, values weakened perceptibly, but the market closed more firmly. Spring Wheat has been recently in very good request, for shipment, at rising prices. The foreign market advices have been more encouraging to the export interest. Corn fluctuated here considerably, closing heavily, on, however, an active movement. More inquiry has been reported for Oats, which, however, closed at reduced figures. Rye attracted increased attention, almost wholly for forward delivery, prime Western leaving off for August delivery at 78¼@79; and September at 76¼@77. Flour has been more freely dealt in, opening weaker, but closing more firmly....The visible supplies of Wheat—embracing the hoards at lake ports, in transit, and on the seaboard—at latest dates, embraced about 12,265,000 bushels,—of Corn, 16,733,000 bushels; of Rye, 211,350 bushels; of Barley, 236,000 bushels, and of Oats, 2,824,000 bushels, against on January 31, an aggregate of 30,104,000 bushels Wheat, 13,100,000 bushels Corn, 979,000 bushels Rye, 4,155,000 bushels Barley, and 3,080,000 bushels Oats.....Ocean Grain freights have been decidedly brisk—largely in the chartering line, and on speculative account, at advanced rates, closing firmly, including by steam to Liverpool, 6@6¼*d.* per bushel; to Bristol, by steam, to 9*d.* per bushel; to Antwerp, by steam, to 8@8¼*d.* per bushel, and sail to Cork, for orders for vessels of average carrying capacity—say 3,000 to 4,000 qrs.—5*c.* 6*d.* per qr. of 480 lbs.

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
June 14	12,697	78	5,160	35,640	30,747
June 21	15,673	119	5,532	38,728	28,016
June 28	14,315	85	5,407	32,605	24,850
July 5	13,970	67	4,986	32,093	25,061
Total for 4 Weeks	56,655	349	21,085	139,066	108,384
do. for prev. 4 Weeks	61,746	150	25,118	142,608	126,208

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	14,164	87	5,271	31,766	27,096
do. do. *last Month*	15,436	37	6,278	35,659	31,571
do. do. *prev's Month*	15,485	69	4,700	26,503	36,585

Prices for beeves the past four weeks were as follows:

WEEK ENDING	*Range.*	*Larger Sales.*	*Aver.*
June 14	8¾@10½c.	9¾@10¼c.	9¾c.
June 21	8¼@10¾c.	9 @ 9¾c.	9¾c.
June 28	7 @10¾c.	9 @ 9¾c.	9¾c.
July 5	6 @10¾c.	9 @ 9¾c.	9¼c.

Beeves.—The receipts have not varied much from the average for the four weeks. There was an uncommonly active market during the second week, with good prices. The Texans and Cherokees, the first of the season, came in during the third week. These steers sold at 7@7¼c., to dress 55 lbs.; Colorados to dress 56 lbs., sold at 9@9¼c. The range for native steers was from 8¼c. to dress 56 lbs., to 10¼c. to dress 57 lbs....**Milch Cows.**—There is a dull market for these now. Prices range from $25 to $55 per head; but for an extra milker for family use, as high as $60 to $65 is sometimes given. ... **Calves.**—All grades of calves have had quick sales and good prices. Buttermilk calves were firm, and sold at 2½@3c. for ordinary to extra, and Veals at 4@6c. for common to choice....**Sheep and Lambs.**—Prime sheep were in demand and sold readily. Lambs were also in request, and the month closed with a firm market. Sheep sold at 3½@5¼c. for poor to choice; Southern and Western lambs at 5½@6½c.; those from New Jersey and Pennsylvania at 6½@7c....**Hogs.**—There are no live hogs for sale. The market quoted nominally at 4½@5c.

The Horse Market.—There has been some demand for light carriage horses that would sell for $300 to $350. Heavy draught horses have been wanted, and brought a good price. There has not been much doing in the other grades; in fact, the horse market is dull.

Prices of Feed.

Cotton-seed meal	per ton.	$30.00
Linseed-cake meal	"	37.50
Middlings	"	24.00
Bran	"	23.00
Corn-meal	"	25.00

Prices of Fertilizers.

Nitrate of Potash (95 per cent.), per lb	8 @8½c.
Sulphate of Potash (potash 44 per cent) per lb	3½@4 c.
do. do. (potash 27½ per cent) per lb	1½@1¾c.
German Potash Salts (potash 12 to 15 p.c.) p. ton	$16.00@18.00
Muriate of Potash (potash 50 per cent), per lb	2 @2¼c.
Nitrate of Soda, per lb	5@5¼c.
Sulphate of Ammonia (25 per cent.), per lb	4 c.@4¼c.
Dried Blood (ammonia 13 per cent) per ton	$40.00@45.00
No. 1, Peruv. Guano 9 p. ct. ammonia, standard, ₱ ton	$55.00
do. do. Lobos, do. do. do	46.00
do. do. guaranteed, ₱ ton, cargo K	56.00
Soluble Pacific Guano, ₱ ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone,	55.00
Mapes' Complete Manure (clay soils) per 1,000 lbs	25.50
do. do. do. (light soils) per 1,000 lbs	25.50
do. do. do. "A" Brand, (wheat) ₱ 1,000 lbs.	20.00
do. Beet do. per ton	49.50
do. Cabbage do. do.	47.50
do. Tobacco do. do.	52.00
do. Fruit and Vine Manure, per ton	37.00
do. Asparagus Manure, per ton	51.00
Homestead Superphosphate	40.00
" Tobacco Grower	60.00
Banner Raw Bone Flower	45.00
Stockbridge Rye Manure, do.	45.00
" Wheat do. do.	45.00
" Seeding Down Manure, do.	40.00
Bowker's Wheat Phosphate, per ton	40.00
Baugh's Raw Bone Phosphate, per ton	33.00
Baugh's Manure for Tobacco and Grain, per ton	45.00
Walton, Wham & Co.'s Raw Bone Phosphate	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

Farming with Irrigation.

It is a common idea that those who can irrigate their land are independent of changes of the weather and other natural influences. While irrigation allows lands to be tilled, which, without it, are valueless, and greatly increases the yield, and consequently the value of most arable land, it does not place the farmer quite beyond the reach of all untoward influences. The following note from G. Thompson for the past four years the Water Master for the District, which includes Richmond, Utah, is of interest. He writes: "The Water Master in this district is appointed by the City Authorities, and gives bonds in $600 for the faithful performance of his duties. He has all control of waters leading from the mountains in the district of four miles square: to assess and collect taxes for the repair of water courses and ditches, and the distribution of waters during the season. We have 2,500 acres of farming land, and 350 city lots. The amount of taxes per year on farm land is $500, and on city lots $300. The Water Master receives a remuneration of five lbs. of wheat to the acre, and 25 cts. to the city lot. We water the farm land on an average of twice each season. City lots, for vegetables and trees, have water once per week. Last season the grasshoppers ate two-thirds of our grain crops, and most of the grass from the stock range, so it was very hard on our stock last winter. We had to commence feeding on the first of November. Therefore straw stacks, straw sheds, and every eatable thing had to go to keep our animals alive. I had 45 acres of small grain last year, and it yielded me only 750 bushels. Thirty-five acres produced on an average 5⁴/₇ bush. to the acre, on account of grasshoppers. On the remaining ten acres (in corn the previous year), it averaged 55 bush. to the acre. The land has been in crop for 19 years in succession, except when the grasshoppers summer-fallowed it for me."—Are grasshoppers an unmixed evil?

Ice Houses and Filling Them.—At this season frequent inquiries are made about Ice Houses. There are a number of illustrated articles on ice houses in the back numbers of the *American Agriculturist*, among the most important of which are: those of October 1870—Nov. 1871—Oct. 1874—Dec. 1875—Dec. 1877—Nov. 1878. In these a variety of structures are described, from a small shed to a large commodious house. Those who contemplate building an ice house would do well to consult these numbers; if he has not the volumes, any number can be obtained post-paid from this office for 15 cents.

Veterinary Education.—Every now and then we are asked if one can not qualify himself to be a Veterinary Surgeon by studying by himself, and are asked what books should be used. We would gladly aid and encourage self-instruction in every case where it is proper. The present improved condition of veterinary medicine is due to the fact that the Veterinary Surgeon of the present day is no longer a conceited but ignorant "horse doctor," but a man who has qualified himself for his profession, and is as well educated as the regular M. D. We do not propose to aid in lowering this standard by the encouragement of any half-way qualification, and one can no more properly fit himself by his unaided studies to practice upon beings with four legs than he can to doctor those with two legs. In both cases the very foundation of a proper education is a thorough grounding in anatomy and physiology; these can only be properly learned by the aid of dissection under a competent demonstrator; this, if nothing else, would prevent one from educating himself, and there are other equally strong reasons against its practicability. The fact is, that no profession holds out greater inducements in the promise of a successful and profitable career, than that of Veterinary Surgeon. But it only offers this to those properly qualified. While it no doubt seems otherwise to the applicants, we are really doing them a kindness when we advise them to not add to the number of half-educated quacks who call themselves Veterinary Surgeons. Those who intend to be properly educated can do much in the way of preparation by a study of text books in the various departments of instruction. The list is too long to be given here, but those interested in the matter will find it in the catalogue of the American Veterinary College, which may be obtained by addressing Prof. A. Liautard, Dean of the Faculty at the College; No. 141 West 54th St., New York City.

"Some" Experience with Rabbits.—One of our editorial staff, had a bright lad of 11 years, who had the rabbit fever quite bad. He produced figures to show that he could pay all his own expenses if he could get the "plant." So, after considerable investigation in the market, the father took home a fine pair of lop-ears, at a cost of $25, and ordered an improved "Hutch" constructed at a cost of $16. While waiting for this, the rabbits were kept in two large dry-goods boxes made of inch pine boards. The young "proprietor" went early every morning to count up the expected progeny, and had as much figuring on the results as the milkmaid had on her eggs. But one morning's observation showed by the teeth marks, that some strong animal had gnawed and wrenched off the inch-thick boards and the scattered fur and bits of skin were all that remained of the splendid dam. The "state of mind" of the "proprietor" was not to be described.—MORAL: Ask the Boy for it. P. S.—Thinking that the marauder, whatever it might be, would be meat-hungry again, and try the buck, a liberal amount of beef was placed near the box. This was gone the next morning. A few rods off was a monster dog, of the "female persuasion," which had evidently laid down to rest, and forgot to wake up at daylight. Some may suppose that the Arsenic bottle got overturned accidentally on that meat. But there wasn't any arsenic on the place, either in any of Prof. Dana's crystals, or in any other form. We haven't said anything about s-t-r-y-c-h-n-i-n-e.

About Lightning Rods.—The lightning rod venders have established such a bad reputation that the people in all parts of the country are shy of them. If there are any who deserve to be trusted it is their misfortune to be engaged in a business in which there is such a number who are to be avoided. In cities there are persons in the business of erecting lightning rods who thoroughly understand it, and who have established a reputation for good work and fair dealing. Those who live beyond the reach of competent parties, and who wish to protect their buildings are at a loss how to accomplish it. Our advice is often asked in such cases, and this is intended as a reply to a number of inquiries. There is nothing about the proper erection of a lightning rod that may not be done by any intelligent person, aided, it may be, in some parts, by a blacksmith. The rules to be observed are not many, but they must be intelligently complied with, else the work had better not be undertaken. An imperfect rod is vastly more unsafe than none at all. If one starts without a pretty thorough familiarity with the laws of electricity, he needs much fuller instructions than can well be given in such an article as we could find room for in our pages. Fortunately there are excellent little hand-books in which the subject is treated in all necessary detail; one of these is by Prof. John Phin, and there is another, the name of the author of which is not just now at hand. Taking a work of this kind as a guide, one should carefully study it in advance of beginning the work, in order that the principles involved may be well understood. While copper is a better conductor of electricity than iron, the greater cost causes iron to be generally used. A round iron rod $^7/_{16}$ in diameter may be used, but the use of square rods and of flat strips is becoming very common. A strip an inch wide and $^3/_{16}$ of an inch thick is a good size, is easily applied, and when painted of the same color as the house is not generally noticeable. Contrary to former notions, the rod may be painted any desired color. Insulators of glass between the rod and the house are regarded as worse than useless; were they of use at any time, so soon as they become wet their insulating power is offset by the conducting power of the water. The termination of the rod in the air was formerly of platinum or of heavily gilded metal, and great care taken to have a sharp point. Now iron is used, and little attention given to sharpness. A rod projects a few feet above the chimney, and there are uprights often along the ridge. The proper termination in the ground is of much importance. The lower end should by all means reach permanently moist earth, and it is all the better if a rod can end in a well. Prof. Phin's work may be had of the Orange Judd Co. Price by mail 50c.

Dog Fennel Once More.—Our friends in the Southern States are occasionally troubled by their cows giving bitter milk, and we have had a number of inquiries within the past few months as to a remedy. When the milk is bitter from anything that the cows have eaten, we doubt if anything can be done to remove the unpleasant taste. In such cases prevention is better than cure. Ascertain what causes the bitterness and keep the animals from it. There appears to be some disagreement as to the plant which causes the trouble. A lady wrote from Texas that it was due to "Dog-Fennel," while Prof. Phares, of Miss., ascribes it to "Bitter-Weed." It is quite likely that both are right, as both are positively bitter herbs. Dog-Fennel is the common name for *Eupatorium fæniculaceum*, an own brother to the well known Boneset or Thoroughwort. Bitter-Weed belongs to the same family of plants, but to a very different genus, being *Helenium tenuifolium* and is a southern brother to our well-known Sneezewort. The statement by Prof. Phares, that cows will not eat Dog-Fennel (July, p. 285) is now contradicted by H. Woodbury, Morgan Co., Mo., who says that cows will eat this and various other weeds. He says that in his own State and in Arkansas, he has seen them leave a pailful of corn-meal slop and eat the Dog-Fennel, and suggests, as seems very probable, that they eat this and other bitter plants as a kind of tonic. Milk is too sensitive an article to tamper with, and no attempt to neutralize or overcome any unpleasant taste or odor, derived from the animal's food, is likely to succeed. The remedy must begin with the pasture.

The American Institute will hold its Semi-Centennial Exhibition, next year; this year its 49th exhibition will begin Sept. 15th, and last until Nov. 27th. It perhaps cannot be avoided, but these occasions are largely used by dealers to advertise their wares, and much that is shown can be seen in the shop windows. Still, in spite of this, there is always enough that is really new and useful to make the exhibition well worth attending, and the spacious building is sure to be well filled, at least every evening during the season. There has been in past years much concerning the management of the Institute that has been sharply criticised, but the present Board of Managers seem to be working to make the Institute as widely useful as possible. Among other indications of this is the encouragement this year offered to "Amateurs and Apprentices in all branches of Mechanical, Industrial and Decorative Art." It is proposed to admit "without charge, for exhibition and competition, all such work as may be approved, and to award premiums to those who may excel in the arts named." We understand that besides the regular trades and the acknowledged arts of Sculpture, Painting, Drawing, etc., this offer includes Fancy Work, Embroidery, Decorated China, Wood Carving, Scroll Sawing, and all other artistic handiwork, calculated to adorn American Homes." Applications for space are to be made before Sept. 1st, to the General Superintendent, Room 22, Cooper Union, New York City.

Turnip Greens.—"A. W. K.," Oldham Co., Ky., sends for trial the seeds of "Turnip Greens," which is the basis of the Kentucky dish known as "jowl and greens." The plant, according to our correspondent, is a variety of turnip which produces a large top and a small woody turnip, and in his climate is sufficiently hardy to generally grow all winter. The seed is sown at the same time as late turnips, and the greens may be had any time during the winter. He says:—"We commence eating greens after Jan. 1st, boiling them with a small piece of bacon, or in salt water, if preferred." He says the plant is liked by bee-keepers as a producer of pollen and honey.

Silk Culture in Alabama.—Samuel R. Lowery is President of an Industrial Academy at Huntsville, Alabama, where it is proposed to give colored youths of both sexes a thorough English education and instruct them in various Agricultural, Horticultural and Mechanical pursuits. Prof. Lowery proposes the raising of silk upon a sufficiently large scale to test its value as affording an occupation, especially to females, being greatly encouraged by the experiments that have been made on a small scale by his family. Every endeavor by the colored people to help themselves, has our best wishes, and if this experiment helps establish the practicability of silk culture as an industry it will benefit the country at large.

Facts About Florida.—A correspondent who left Wisconsin on account of his health, and settled in Florida only after two years of wanderings and explorations, takes what we have no doubt is the correct view of the State as a place for settlers from the Northern States. He thinks that the State has been much overpraised by parties interested in the sale of lands. He says: "Many have come here who have failed elsewhere, and nine out of ten of these will fail here. There is an honest living here for those who will earn it, in the raising of about the only thing the country is fitted for—Oranges. I owe much to the country, but I would advise no one to own a grove unless he can come here to attend to it personally." And to this we would add, that it takes some years to get an orange orchard into *profitable* bearing. Of course one must have capital enough to start the trees, and either capital or other resources to subsist upon while caring for the trees and waiting for them to bear. These points should enter into one's calculations in advance. With a bearing orange grove, we presume, there are no doubt many attractions in the business, in the climate, etc., if one can locate so as to have desirable social and educational advantages for a young family, if he have one.

Rye for Soiling.—The first soiling crop in early spring is rye. For this purpose it should be sown late this month or early in September. A deep, mellow soil, well supplied with rich manure, is the one which gives the best returns for the trouble. After it is cut in the spring the rye will spring up again, and even a third crop may thus be obtained from the same sowing, and at intervals of a few weeks.

Population of our Large Cities for 1880.—The returns of the Census recently taken show the following population for the 17 cities of the United States having over 100,000 people. The population of the same cities for 1870 is also given, to show the growth that has taken place in the past ten years:

	1880.	1870.		1880.	1870.
New York	1,207,000	952,000	Cleveland	156,000	93,000
Philadelphia	847,542	674,000	Pittsburg	153,000	86,000
Brooklyn	554,000	396,000	Buffalo	150,000	117,000
Chicago	474,000	299,000	Newark	137,000	105,000
St. Louis	490,000	310,000	Milwaukee	130,000	71,000
Boston	360,000	250,000	Louisville	120,000	100,000
Baltimore	350,000	267,000	Detroit	119,000	79,000
Cincinnati	250,000	216,000	Providence	104,000	68,000
Washington	160,000	110,000			

A number of changes in the scale has taken place. Chicago, that stood fifth in 1870, takes the fourth rank; in fact, changes places with St. Louis. The same with Boston and Baltimore.

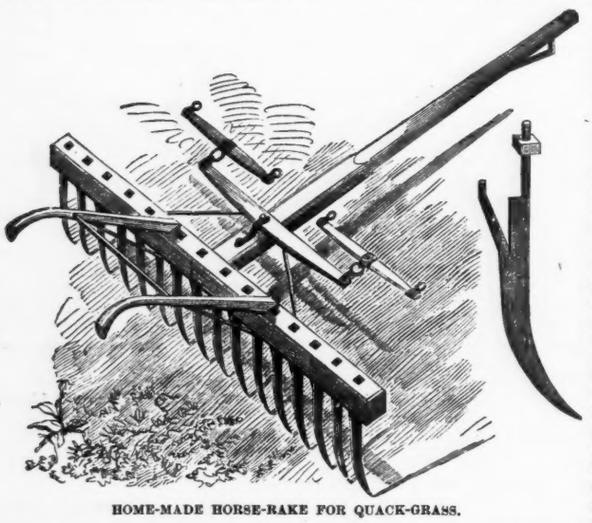
Riparian Rights.—"D. K.," Rhode Island. The term comes from the Latin *ripa*, a river bank, and in law refers to the privileges and rights of persons owning land along rivers and streams. It would take too much space for us to give even an outline of the subject, as there are the rights in common law and their modification by the laws of different States. A very good idea of the matter may be obtained by reading the article under the above heading in the 14th vol. of the American Cyclopædia.

Points or Shoes to Wheat Drills.—Whoever claims to increase the yield of wheat from the same amount of seed will be very sure to receive attention. The seed wheat, as it is put into the ground from the ordinary drill, lies in narrow strips about an inch wide. If the same amount of seed could be so placed as to occupy a strip three or four times as wide, it is evident that the plants will have more room, and that their early development, taking place without crowding, will be more vigorous, and the plant better prepared to give its yield of grain. J. A. Jones, Wilmington, Del., makes a Drill Point of his own invention, which may be attached to any drill in place of the points of the old style. These points are so constructed as to run steady and level, forming a flat-bottomed furrow from 3¼ to 5 inches wide, and to scatter the seed over the whole width. This is a matter deserving the attention of wheat growers.

Overstocking the Farm.—There is such a thing as keeping more than a profitable number of cows or sheep upon a farm. A half dozen half-starved cows will not yield as much milk as three that have all the food that they want. If there is no more stock than can be well kept the returns will be the greatest in money, and also in the satisfaction of seing the animals in a good, healthy condition—no small part of the income to one who loves to have good stock well kept upon his farm.

Quack Grass: How Subdue It.

"W. A.," Fort Atkinson, writes; "Will you kindly tell me whether there is any way of ridding a piece of land of Quack-Grass. I have a piece in corn this year, but cultivation only seems to spread it, and make it worse." This complaint is but one among many, and we make a general reply. The grass in question (*Triticum repens*), has a number of common names, among which are Quick-, Quitch-, Twitch-, Quack-, and Couch-Grass. If the grass has taken complete possession of the ground, forming a tough mass of "roots," there is only one way of ridding the soil of it. The ground should be plowed as deeply as possible in fall, so that most of the "roots" may be loosened, and turned up. Leave the land thus plowed until spring, then go over it with a cultivator every two weeks, until time to sow buckwheat. So soon as the buckwheat is harvested, begin cultivating again, not allowing the Quack-grass to make any start to grow. After cultivating each time in autumn, the ground should be raked to remove the "roots" of the grass that have been loosened and left on the surface. A rake for this purpose is shown in the accompanying engraving. The head is made of a piece of hard wood, 4 inches square, and 5 feet long, in which a tongue is set and braced. A pair of old plow handles complete the wood work. The teeth, of iron, should be 1¼-inch wide, by ½ thick, made somewhat scythe-shaped, and provided with a shoulder brace, and nut and screw. The position they take in the head-piece is shown in the engraving. With this implement, the "roots" of the Quack-grass can be gathered rapidly into windrows, after which they can be raked into heaps, and carted off to a safe place, where they may dry and be burned or rot into manure. For a small patch, a potato hook will serve the same end, in removing the "roots" from the soil.



HOME-MADE HORSE-RAKE FOR QUACK-GRASS.

Saving an Historic House.—A pint or less of water applied at the right instant will stop a conflagration that a few minutes later can not be subdued by the most powerful steam fire engine. An illustration of this was afforded not long ago at the College of William and Mary, Williamsburg, Va. The President's house was erected in 1732, and being accidentally destroyed by the French troops in 1781, was rebuilt by Louis XVI. out of his own private funds. This dwelling accidentally caught fire on the roof from a burning chimney. The roof, being a French one, is very steep and difficult to reach, but fortunately one of the neighbors had one of Whitman's Fountain Pumps which enabled him to throw a small stream just where it was needed and the building was saved. In this case there was an abundance of water, and of assistants, but these were of less use in subduing the fire than a small quantity of water sent to the right spot by this excellent little hand engine.

"Which is the Best Grain Drill?"—A question like this, in regard to the various kinds of farm implements, is frequently asked us, and is very difficult to answer. In the present case, it is impossible for us to say which grain drill is the best. The agent for the "Farmer's Favorite" will claim that his is superior. The "Champion" men will bring up all the arguments in favor of their drill, and the "Hagerstown" and "New Gearless Buckeye" will have their advocate, while one who has used the "Victor" will be warm in its praises. The fact is that each one of the leading drills is so nearly perfect that it is a very difficult task to decide which is best, it being largely a matter of taste and of preference through acquaintance with a particular pattern. With these, as with other farm implements, it is better, other things being equal, to purchase of the one made nearest home, or the most accessible, so that should a part be broken, or otherwise out of order, it can be replaced with the least possible delay.

Pot-Grown Strawberry Plants.—For the benefit of those who would establish a fruiting bed in the shortest possible time, and are willing to take the trouble, we described some twelve or fifteen years ago the method of layering strawberries in pots. This method has since been adopted by the nurserymen, and nearly every one who deals in strawberry plants at all offers those that are "pot-grown." As some of our correspondents do not seem to understand the matter, we explain. The strawberry plant is propagated by what are called "runners." A runner is a long very slender branch, with a bud at the end. Ordinarily this bud rests upon the surface of the bed and strikes root; the young plant grows rapidly, as it is supplied with nourishment from the mother plant, and soon is fed by its own roots, and when it becomes established, sends out runners of its own to form other plants. If the plants from the runners formed early in the season are left where they started, they would bear fruit next year, but we wish to make a new bed elsewhere, and the young plants are taken up either in the fall or next spring and planted out. Plants thus treated, having their roots disturbed, must grow a year in their new place before they are strong enough to give a good crop. It makes little difference whether we take up such plants and make a new bed in Sept. 1880, or in April, 1881, they will require all of 1881 to become sufficiently well established in their new bed, and strong enough to give a crop of fruit. They may, and often do, bear a few berries the first year, but not enough to be desired. If, instead of allowing them to take root in the bed, we place under the runner a small pot filled with rich soil, and let it strike its roots in that, we have then what is called a "pot-grown" or "pot-layered" strawberry plant.

In practice these pots are filled with rich compost, and each one is sunk in the soil of the bed where it can be reached by the end of a runner; the runner is placed on the soil of the pot and held in place by means of a small clod or hooked stick until it strikes root. When the roots have filled the soil of the pot and need more room, the new plant is separated from the mother plant by cutting the runner, and the ball of earth is turned out of the pot and placed in a new bed, where, its roots not having been disturbed, it goes on and grows without any interruption. Plants so treated are in just the same condition with those that take root in the bed and left undisturbed, and will bear a good crop the next spring. The runners struck in pots in June and July, and planted out in August and September, 1880, will bear a fine crop in the summer of 1881. Of course such plants cost much more than those grown in the ordinary way, as the labor of producing them is considerable, but those who are in a hurry for fruit are usually willing to pay the extra price. A reference to our advertising columns will show that the leading dealers offer strawberry plants that are pot-grown.

The Eucalyptus Tree.—Notwithstanding that there are about 100 species of *Eucalyptus* recognized by botanists, one species, *Eucalyptus globulus*, the Australian Blue Gum, is generally spoken of as *the* Eucalyptus. This is due to the fact that it is more widely known than any other species, as it has been more generally planted outside of Australia than any other, as a rapid-growing timber tree. A few years ago it was claimed that this tree had the power to render malarious regions healthy, and much was said upon planting the Eucalyptus, in the daily papers as well as in the agricultural journals. The *American Agriculturist* stated at the beginning of this excitement that the tree would not be hardy in any of the Northern States, but papers which should have known better continued to set forth its alleged anti-malarial properties, and it was only after there had been many disappointing failures that the excitement subsided. We were surprised to find the subject revived, and the planting of Eucalyptus advocated anew by a journal so generally well advised in such matters as the *N. Y. Evening Post*, which, in an otherwise well-considered article on "Trees in the Streets," in its issue of July 10th, has the following:—"The Eucalyptus is said to be a safeguard against malaria; and in that case parts of Manhattan which are notoriously infested by malarious disease might be fringed with this tree to infinite advantage." It might be of "infinite advantage" to fringe other "parts of Manhattan" with orange trees or with pine-apples, and either would succeed about as well as the Eucalyptus. It is a matter of regret that this subject has been revived, and that by a journal of influence. It should be generally understood that this Eucalyptus is barely hardy in Georgia, and that it will not succeed north of that State anywhere on the Atlantic slope. On the Pacific coast the conditions are favorable, and it has been extensively planted, and with remarkably successful results as to rapid growth. Whether there is any real foundation for the belief in its anti-malarial powers is doubtful. If the tree does prevent malaria, it is impossible for the people of Manhattan or other northern localities to avail themselves of its powers, as it will not survive a single winter in the open air. Indeed, the tree, so far as the climate of New York is concerned, cannot be regarded as half hardy. Having a tree in the grounds that had grown too large to return to the greenhouse on the approach of winter, we, by way of experiment, carefully protected it with a covering of straw. Though the following winter was a mild one, it was in spring found to be thoroughly dead, root and branch.

Potato Bugs Valuable.—It's just our luck! Yesterday we wished to try a new remedy, and found that there was not a bug on the potatoes, and we rejoiced. To-day we learn that potato bugs have a market value, and, of course, we have none! It must be true, for it is in print! A man in Queens Co., Md., tried burning his bugs, and didn't like it; then he tried boiling, and made the great discovery that the pot-liquor would dye leather and linen a brilliant crimson. More than that, the goods, after dyeing, were stronger than before. As we read these wonderful things, we thought we might raise some bugs, but some one has got ahead of us on that, and even the boys are engaged to pick 'em. There is a company that will go into the dyeing business. They have engaged 10,000 quarts of bugs at six cents per quart, and expect to want more. The bugs must be kept alive until the company is ready to begin operations—that is, they mustn't die until they are wanted to dye, and the company has erected a building in which to feed the bugs. The beauty of a hoax of this kind consists in keeping just within the limit of probability, but this is a very clumsy piece of humbuggery, quite overdoes it, and breaks down of its own weight.

Altitudes.—"J. S.," Salt Lake City, Utah—The barometer is used to take altitudes with the greatest accuracy, but as you only wish to do so approximately, you may find the boiling point of water to answer your purpose. It is a well-known fact that water boils at a lower temperature when the pressure of the atmosphere is diminished. Another fact is, that the higher the altitude the less the pressure of the atmosphere. As we ascend a mountain, water boils one degree lower for every 550 feet we go up. With an accurate thermometer and a contrivance for boiling water, you can come very near the altitude. We doubt if there is any satisfactory answer to your other question.

Clean Fruit Baskets.—J. R. Hawkins, Mountainville, N. Y., thinking that many fruit cups and baskets are not improved for future use, by being taken to hospitals, and being kept for a while in sick rooms, and considering that these receptacles are rarely returned in a clean state, sends with his fruit a card insisting that the cups and baskets be sold with the fruit, and he will supply new ones with each shipment. The great trouble in this matter is, that people do not want the cups, etc. The majority of those who buy berries take a basket to market and have the contents of the small packages emptied into it. It seems a matter more easily arranged with the consignee or retailer than with the customer.

A Farm Forge.—A farm without an anvil, a vise, blacksmith's tools, etc., is not thoroughly equipped for its best and most economical work. To these tools there should be added one of the small forges that have been so much improved of late, and are now so perfect in their action and handy in the farmers' blacksmith shop. These forges are so cheap that they are within the reach of all, and, if proper use is made of them, will pay for themselves in a very short time. As the use of a forge means the presence of a fire, it is important that they be used with due caution.

Grass Named.—H. M. Charlevoix (no State)--The grass of which you wish the "name, history and use" is Orchard grass, *Dactylis glomerata*. If by its "history" you refer to its origin, we may say that it was introduced from Europe. Its use is as a meadow grass, it being by many preferred to Timothy, by itself or to sow with Clover. It should be sown very thickly, as otherwise it tends to form clumps or tussocks; thick seeding also makes the foliage finer. The seed is kept by seedsmen.

"Just the Thing I Wanted,"

says a subscriber who has already received and thoroughly tested one of the new **Beach's Folding Fret Saws.** He says: "It does its work so well, is so handy to use, is so strong, stands so firmly, and then folds so quickly and so closely that it is out of the way in a minute. Then it is so cheap, and mine cost only 30 cents for bringing it 98 miles. I would not take $10 for it if I could not get another. I want to thank the Editors of the *American Agriculturist* very much for taking hold of it, and bringing it before their readers. I hope every boy and man will have one."....This is talking pretty strongly, but not more so than the apparatus deserves. A good many others talk in the same way. In answer to letters of inquiry, we answer that it runs true and steady; that the table is tilted very easily by simply turning a screw, that is, the table holding the wood to be sawed can be inclined to one side or the other, so that the Saw will cut at any desired angle, for beveling. The Saw cuts so smoothly that inlaid work is very beautifully made, even to very fine lines. The Saw is strained or kept tight by the simple action of the two arms. (See description and engraving on page 257, last month.) A great commendation is, that with all its advantages, the whole apparatus is supplied (cased for carriage) for the low price of $2.25, and it folds so closely as to cost but little for carriage, and requires very little room for storage when not in use. Those who prefer to save the price ($2.25), can obtain one as a *Premium* for sending *four* subscribers to the *American Agriculturist* at $1.50 a year, or *eight* subscribers for half a year at 75 cts. Subscriptions can begin at any time—though it is preferable to begin July 1st or January 1st. We can always send back numbers from January 1st, 1880, or any desired numbers or volumes for twenty-three years past, as we keep electrotype plates for printing from. Old or new volumes or numbers are at the same price.

"Little's Chemical Fluid" is the name of a sheep dip that has been much used in England, and has found favor with those who have tried it in this country. It is free from arsenic and other mineral poisons, being largely composed of those coal tar products that are well known to be destructive of insect life.

Mending Tin and Other Ware.—The use of a "soldering iron" is one of the accomplishments that every boy may easily acquire, and should he afterwards live in the country or elsewhere, at a distance from a tinsmith, he will find frequent occasion to use his skill. There are several contrivances to aid those who cannot use the soldering iron in mending tin-ware. One of these, the "solder-wire," was noticed several months ago, another, suited to mending larger holes, is called the "Copper Patch Plate." This is a sheet of copper, thin enough to be easily cut with ordinary shears; one side of it has a rather thick coat of solder, over which is a film of rosin. To mend a hole in a pan or other vessel, a patch is cut from the plate, enough larger than the hole to extend for some distance all around it. The surface to which the patch is to adhere being scraped clean, that is put in its place, and a heated poker or other iron is held upon it until the solder melts and adheres to the surface of the vessel. To make a good job, take care to fit the patch well to the surface, so that it touches in every part; scrape the surface bright and clean, and do not touch and soil it before the patch is in place.

Beautiful Iron Work.—The catalogue of the Racine (Wis.) Iron Works is a most interesting pamphlet, as it shows the great perfection that has been reached by our iron founders. This company makes a vast number of wares used in window gardening, such as Brackets, Pot Stands, Window Boxes, Ferneries, etc., in which tasteful design increases their beauty without detracting from their utility or increasing their cost.

Milk Cans—Keep Clean.—Much of the success of many in butter-making depends upon the thoroughness with which they cleanse their milk cans, pails, pans, etc., in fact, all the utensils that are in any way connected with the milk and cream. Some persons cannot make good butter, because they are careless in all the operations.

Invalid Chairs.—The best place for a very sick person is the bed, but the convalescent finds a change to a chair of some kind, especially one of the modern invalid chairs, is a great relief. It often happens that a sprain, or it may be a rheumatic attack, or other trouble, will interfere with the locomotion of one who is not otherwise disabled. In such cases a chair in which one can propel himself about by the use of the hands is a great convenience. Cases like these, not to mention the many in which the person is permanently crippled, have led to the invention of a great variety of chairs which are known by the general term of "Invalid Chairs." These often show much ingenuity in their propelling arrangements, as well as in their adjustments, which allow of a change to a great variety of positions according to the desire of the occupant. No chairs of this kind have had a greater popularity than those made by Herbert S. Smith, a concern which father and son have advertised in the *American Agriculturist* these many years. This is the only establishment in this country, and probably the only one in any country that devotes itself to making such chairs exclusively. Where these are the only wares made, one is likely to find a greater variety, and also to get styles to suit particular cases, than where the work is only a part of a general furniture business.

Nuts and Nubbins.

Hard to beat—an old carpet.

A floral swell—the dande-lion.

Something gnu—a horned horse.

Do ships on speaking terms lie to.

Spring holds the reins this season.

The king of Greece—Oleomargarine.

Lap of luxury—when the cat gets cream.

A plant that flourishes in winter—The cow-slip.

An underta er gets a living where another man dies.

A gentleman named his dog Penny, because it was one sent to him.

Cats have no fixed political belief. They are usually on the fence.

A man is like an egg. You can not tell whether or not he is good until he is "broke!"

An advertisement for a "saddle-horse for a lady of about 950 pounds" is going the rounds.

We hear of men sowing wild oats, but whoever heard of a woman sowing anything but tares?

A Western paper heads the marriage of a bachelor of 57 years, "Another Old Landmark Gone."

Another old settler gone!" exclaimed the cook when she tossed the egg-shell out of the coffee-pot.

"Look out for the locomotive when the bell rings," is painted in large letters, so that he who reads may run.

A Meriden man has a Bible 142 years old. Strange how long a Bible may be made to last by temperate usage!

"Gentleman," said a farmer, writing to the chairman of an agricultural society, "put me down on your list of cattle for a calf."

Artemus Ward once began a lecture by saying: "Ladies and gentlemen, I possess a gigantic intellect, but I haven't it with me."

Some females have just been arrested in Kentucky for the manufacture of illicit whiskey. This is the first recorded instance of a woman keeping still.

Wife: "But, my dear, I shall catch cold coming down so late to let you in."—Husband: "Oh, no, my love, I'll rap you up well before you come down."

A husband telegraphed to his wife: "What have you for breakfast, and how is the baby?"—The answer came: "Buckwheat cakes and the measles."

One of the saddest and most vexatious trials that comes to a girl when she is married is that she has to discharge her mother and depend on a servant girl.

Photographer: "Now, sir, if you'd look a little less as though you had a bill to meet, and a little more as if you'd been left a legacy, you'll be a picture."

If the deacon will pass the contribution-boxes around on the sidewalks they may be able to scatter the crowds of loafing young men who stand in front of churches.

Young ladies who wish to have small mouths are advised to repeat this at frequent intervals: "Fanny Finch fried five floundering frogs for Francis Fowler's father."

A couple of reporters spent the night in a cell with a man who was doomed to be hanged in Connecticut recently, and in the morning the prisoner was perfectly willing to die.

An Irishman who stood for a long time looking at a ship's anchor was ordered away, but refused to go, saying: "Divil a bit will I stir till I see the man that's going to use that pick."

"What is worse than freckles?" asks the *New Haven Register*. "Corns. They don't show much when you're dressed up, but then if you keep straight, no fellow can step on your freckles."

Patient—"Yes, sir; you are an ignorant blackguard, sir." Homœpathic M. D.—"Well, sir, then you've come to the right person for treatment, as, according to our theory, 'like cures like.'"

An ingenious observer has discovered that there is a remarkable resemblance between a baby and wheat, since it is first cradled, then "thrashed," and finally becomes the "flour" of the family.

A little girl who had often heard her mother speak of her father, who was quite bald, as being a self-made man, asked her one day, if her father was a self-made man, why he didn't put more hair on his head.

In struggling to make a dull-brained boy understand what conscience was, a teacher finally asked: "What makes you uncomfortable after you have done wrong?"—"Father's leather strap," feelingly replied the boy.

At an examination for admission to the bar, the question was asked: "What is the rule in Shelley's case?"—One of the class answered: "It is the same as in any other man's case. The law is no respecter of persons."

A little girl, aged three, went to church lately to see a christening. When, on her return, she was asked what she thought of the baby, she replied: "It was a good baby, it did not cry when the gentleman washed its head."

It is said that a young lady in Penn Yan, N. Y., wears twelve diamond rings on one finger, and the *Norristown Herald* thinks she should also wear a gold band around her head to prevent the crack in her skull from widening.

Smith to Brown, going home from the club in the small hours of the morning: "It's awfully late, Brown; what'll you say to your wife?"—Brown: "Oh, not much; good morning, my dear, or something of that sort; *she'll say the rest.*"

An Illinois youth, husking corn in a field near the railroad, saw a new locomotive, with a red smoke-stack. He became frightened, and ran to the house crying: "That 'ere engine is going to bust, sure; it's red-hot clean to the top of the stovepipe."

A young lady who read that it is lucky to pick up a horseshoe, happened in a blacksmith shop the other day, and picked up one just made. The surprising suddenness and piercing shriek with which she dropped it showed that it was more than simply lucky.

"Is this my train?" asked a traveller of the Kansas Pacific Railroad depot lounger.—"I don't know, but I guess not," was the doubtful reply. "I see it's got the name of the railroad company on the side, and I expect it belongs to them. Have you lost a train anywhere?"

A small boy, boasting of his father's accomplishments, said: "My father can do almost anything; he's a notary public and he's an apothecary, and can mend teeth, and he is a doctor, and can mend wagons and things, and can play the fiddle; he's a jackass at all trades."

"Do you see that spring over there?" said a settler in Arkansas to a stranger. "Well, that's an iron spring, that is; and it's so mighty powerful that the farmer's horses about here who drink the water of it never have to be shod. The shoes just grow on their feet nat'rally."

An Englishman at a hotel in New York asked the clerk if there were "oysters in the hotel."—"Oh, yes, was the answer; "step right in the restaurant; we don't keep them in the office."—"Egad!" said Mr. John Bull, "I think you misunderstand me, you know; I mean a 'lyster, don't you know, a 'lift'—a 'hellevator' may be you call it in this country."

The people of a New Hampshire town are so fearfully lazy that when the wife of a minister who had just settled in that town asked a prominent citizen if the inhabitants generally respected the Sabbath and refrained from business, replied: "Confound it, ma'am, they don't do enough work in a whole week to break the Sabbath, if it was all done on that day."—*Post.*

"Bub, did you ever stop to think," said a grocer recently, as he measured out half a peck of potatoes, "that these potatoes contain sugar, water, and starch?"—"Nos, I didn't," replied the boy, "but I heard mother say you put peas and beans in your coffee, and about a pint of water in every quart of milk you sold." The subject of natural philosophy was dropped right there.

The other day a farmer met a friend, who asked him how prospects were out in the country.—"This dry weather is just killing everything," was the doleful reply.—Some hours afterward a storm of rain broke over the city, and as the farmer ran in and out of the wet his friend said: "This will do good out your way."—"May be, may be," said the farmer, "but it's mighty rough on them's got hay out to-day."

A clergyman asked his Sunday-school: "With what remarkable weapon did Samson at one time slay a number of Philistines?"—For a while there was no answer; and the clergyman, to assist the children a little, commenced tapping his jaw with the tip of his finger, at the same time saying, "What's this? what's this?"—Quick as thought, a little fellow innocently replied, "The jaw bone of an ass, sir."

As P. T. Barnum was selecting a turkey in one of our markets, the owner drew his special attention to a large fat gobbler. Suspecting it was an antediluvian, Mr. Barnum said, with a smile, "What do you sell that old gentleman for?"—With an air of triumph the owner replied, "I sell him for a profit."—"A prophet! Oh, I supposed he was a patriarch," was the quiet response. The study of sacred history terminated.

Little Edith—"Mamma, and you think if a person is really and truly in love, it would be wicked to deprive her of the object of her affections?"—Mamma: "Why, certainly, Edith, dear; but where in the world did you learn all that?"—Edith: "I heard you tell it to Mrs. Jinglejaw to day. And, mamma, I'm awfully in love with that loaf of cake in the cupboard." Edith and the object of her affections were immediately united.

Three Irishmen, who had dug a ditch for $4, were quite at a loss to know how to divide the pay "aqually." But one of the number had gone to school, and reached division in the arithmetic, so it was left to him. He did it at once, saying: "It's aisy enough. Shure, there's two for you two, and two for me, too." The two received their portion with a greatly increased respect for the advantage which learning gives to a man.

A sad looking man went into a Burlington drug store. "Can you give me," he asked, "something that will drive from my mind the thoughts of sorrow and bitter recollections?" And the druggist nodded and put him up a little dose of quinine, and wormwood, and rhubarb, and epsom salts, and a dash of castor oil, and gave it to him, and for six months the man couldn't think of anything in the world except new schemes for getting the taste out of his mouth.

Mr. C——, pastor of a certain church, had been on very bad terms with his flock for some time. Before his contract with the parish expired, he was appointed chaplain at the state prison. Elated at getting rid of him, the congregation came in full numbers to hear his farewell sermon. Great was their astonishment, when the reverend gentleman chose for his text the following words: "I go to prepare a place for you * * * that where I am, there ye may be also."

Patrick saw a bull pawing in a field, and thought how amusing it would be to jump over, catch him by the horns, and rub his nose in the dirt. The idea was so funny that he laughed to think of it. The more he thought of it, the funnier it seemed, and he determined to do it. Boyus quickly tossed him over the fence. Somewhat bruised, Patrick leisurely picked himself up, with the very consolatory reflection: "Well, it is a mighty foine thing that I had my laugh afoorst."

"Prisoner at the bar," said the judge to the man on trial for murder, "is there anything you wish to say before sentence is passed upon you?"—"Judge," replied the prisoner, solemnly, "there has been altogether too much said already. I knew all along somebody would get hurt if these people didn't keep their mouths shut. It might as well be me, perhaps, as anybody else. Drive on Judge, and give us as little sentiment as you can get along on. I can stand hanging, but I hate gush."

"William, do you know why you are like a donkey?"—"Like a donkey?" echoed William, opening his eyes wide; "no, I don't."—"Do you give it up?"—"I do."—"Because your better-half is stubbornness itself."—"That's not bad. Ha! ha! I'll give that to my wife when I get home."—"My dear," he asked, as he sat down to supper, "do you know why I am like a donkey?"—He waited a moment, expecting his wife to give it up, but she didn't. She looked at him somewhat commiseratingly as she answered: "I suppose because you were born so."

A well-dressed lady called at a carpet warehouse and asked to look at some carpets. The goods were shown, every pattern in the shop being spread out for examination. After looking at everything about the place, and driving some very close bargains in the matter of price, the lady selected a carpet for each room in her house, running up a bill which filled the salesman's heart with joy. When all was completed, he asked where the carpets were to be sent. The lady replied, without hesitation, that she would call and let him know. "You see," she added, "my husband has just bought a piece of ground, and talks of soon building a house on it. If he does, you know, I shall want some new carpets, and then I will call and order these, as I know the cost."

PIGS.

Our choice **Chester White, Berkshire, Yorkshire, Jersey Red, Poland-China,** and **Essex Pigs** of all ages was never finer, at the same time our prices are **unusually low. Also EXTRA COTSWOLD and SOUTHDOWN LAMBS,** yearlings and 2-year olds. A number of **fine yearling Bucks LOW.** Do not fail to write us before purchasing. Illustrated Catalogue mailed on application.
BENSON, MAULE & CO., 223 Church St., Philadelphia, Penn.

★ ★ ★ ASK FOR ★ ★ ★
Wells, Richardson & Co's
PERFECTED BUTTER COLOR
It Gives Butter the gilt-edged color the year round. The largest Butter Buyers recommend its use. Thousands of Dairymen say **IT IS PERFECT.** Used by all the best Creameries. Awarded the International Diploma at N. Y. Dairy Fair. Ask your druggist or merchant for it; or write to ask what it is, what it costs, who uses it, where to get it. **WELLS, RICHARDSON & CO., Proprietors, Burlington, Vt.**
★ USE ★ ONLY ★ THIS ★ THE ★ FIRST ★ AND ★ THE ★ BEST ★

BUTTER WORKER.

Lilly's Patent.

Won **First Premium** at the American Institute Fair, New York, in 1878; at the Fair of the Penn. State Agricultural Society in 1879; at the Dairyman's Fair at Delhi, N. Y., in 1879, and at County Fairs innumerable. Acknowledged to be the **only self-feeding and reliable machine in the market.** Descriptive circular sent free.

C. H. R. TRIEBELS, 316 Race St., Phila, Pa.

Rectangular and Square **BOX CHURNS**

Cheapest and Best. No inside fixtures, and *always reliable.* Six sizes of each kind made. Three sizes of the *Lever* Butter Worker made. Best material used, and every Churn and Butter Worker *warranted* exactly as represented. One Churn at wholesale where we have no agent. *Send Postal for Circulars.*
AGENTS WANTED.

CORNISH & CURTIS, Fort Atkinson, Wis.

BUTTER WORKER.

The most effective, simple and convenient yet invented. **Works 30 lbs.** *in less than* **5 minutes,** *thoroughly working out buttermilk* and *mixing in the salt.* **AGENTS WANTED.** *Send for Circular.*

A. H. REID, 6 N. Eighteenth St., Philadelphia, Pa.

HOUSE-KEEPERS, ATTENTION!

THE GLOBE WASHBOARD AND THE IMPROVED UNION CHURN

Are the best in the world. Neither have any equals. Over 600,000 **Globe Washboards** sold in 1879. No more sore hands or torn clothes on inferior washboards. Buy it and try it. The Improved Union Churn is the perfect butter-maker. Easier and quicker than by any others. One trial will convince any one of the fact.

Send for circulars with full details. Liberal terms to dealers.

UNION MANF'G CO., Toledo, Ohio.

NOVELTY INCUBATOR.

I offer this as the **simplest, cheapest, most easily run,** and **best** Incubator. Daily cost of running, 3 cts. for fuel and a few minutes attention. Hatches 80 to 90 per cent almost surely. **Holds 100 Eggs, Price, $25.00.**
Also **NOVELTY HYDRO-MOTHER, Price $8.**
A. G. ATKINS, Orange, N. J.

HARNESS.

A GOOD, SUBSTANTIAL HARNESS,
Hand-made, full nickel-plated, for **$13.50.** Call and see or send for sample. Also a complete assortment of *RIDING SADDLES, BRIDLES, CARRIAGE ROBES,* and *DUSTERS, HORSE CLOTHING,* and *NETS.*
C. B. SMITH & CO., 40 Warren St., New York.

☞ **FRIENDS!** If you are in any way interested in

BEES OR HONEY,

We will with pleasure send you a sample copy of our **MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of the latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all books and journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly,* to
A. I. ROOT, Medina, Ohio.

D. M. MAGIE CO., Oxford, Ohio, Originator Magie or Poland China Swine, commenced business in 1840.
We have a splendid lot of spring pigs that we can supply parties with now that desire stock of this superior and famous breed. Those who do not wish to purchase until fall should send their orders in now and have them recorded, in order to secure what is desired before all are engaged or sold. Money need not accompany orders sent now for fall delivery. Over 2,000 pigs sold for breeders in six years. Prices reasonable, ½ reduced rates by express. Send for circular and prices.

JERSEY RED

Hogs still ahead in heavy weights. Fine stock of spring pigs at low prices.
Address J. S. COLLINS, Moorestown, N. J.

85,000,000 RINGS SOLD.

Map of U. S. Showing No. and price of Live Stock mailed free; also Catalogue of Ringers, Rings, Stock Markers, Barbs for Board Fences, Huskers, Ladies, Ditch Cleaners.

H. W. HILL & CO.,
Decatur, Ill.

ESSEX PIGS.

COTSWOLD SHEEP.

"Clawson" & "Gold Medal" Wheat.

Catalogue and price list free to all readers of the *American Agriculturist.* Address **JOSEPH HARRIS,**
Moreton Farm, Rochester, N. Y.

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Thoroughbred *Cattle, Sheep, Hogs, Fancy Poultry,* Sporting and Farm *Dogs,* all bred from the *Choicest Imported* and *prize-winning strains* and for sale at fair prices. Write for what you want and ask for BURPEE'S ILLUSTRATED CATALOGUE, sent FREE. Address plainly, **W. ATLEE BURPEE & CO., 221 Church Street, Philadelphia, Pa.**

A Cure for Foot Rot.

Best & Cheapest.

Buchan's Cresylic Sheep Dip prevents and cures the scab and all parasitic diseases of the skin.
Buchan's Cresylic Ointment is CERTAIN DEATH to the Screw-worm or Grub.
For further particulars, send for price lists and circulars to **KIDDER & LAIRD, 83 John St., New York.**

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Is the only permanent, reliable, and sensible pad for sore necked horses or mules ever made, being smooth metal always in order, it does not wear the mane. Over 1,500,000 in use. Pads of other material soon become worthless, and have no curative properties whatever. Zinc Pads are sold by all Saddlery Houses and Harness Makers. Ask for them. Manufactured by ZINC COLLAR PAD CO., Buchanan, Mich.

GAME FOWL BRED & SHIPPED. Also Sporting Dogs and Cattle, by J. C. COOPER, Cooper Hill, Limerick, Ireland.

THOROUGHBRED AND CROSS-BREED
OR GRADE JERSEY STOCK.

5 fresh cows, 4 to 8 years old, with or without calves.
5 thoroughbred Jersey Bulls, 1 to 5 years old.
5 " " Heifers, 8 to 11 months old.
All the above are, or can be registered in the A. J. C. Club Register. 25 cross-breed heifers and cows, 2 to 7 years old. These are a mixture of the two breeds, Jerseys and Ayrshires; several are now fresh, and the balance within the next two months. The best family cows ever bred, all rich milkers and butter-makers; some of them 2 lb. cows, beautiful in form and colors. Orders solicited for calves of either breed, deliverable when weaned and ready to ship at 2 to 3 months old. My prices range from $45 for a high grade heifer calf, to $400 for my best thoroughbred cow and calf.
April, 1880. THOMAS FITCH, New London, Conn.

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Or Aberdeen Cattle." Frank D. Redfield, of Batavia, New York, is breeding and **importing** these famous cattle. Send for Catalogue.

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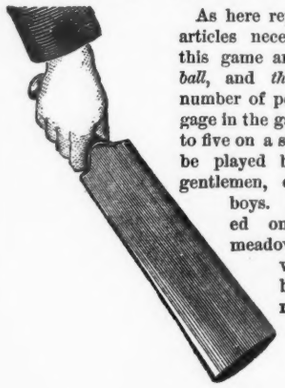
Importer and **Breeder** of **Ayrshire, Guernsey,** and Jersey **Cattle,** which always take the Highest Awards at *County, State, National,* and *International* **Shows.** Southdown Sheep direct from Lord Walsingham's flock, in England. Berkshires of the *highest type.* Collie Dogs of my own selection on the Highlands of Scotland. An inspection of the stock invited. Only 2 hours from N. Y. City.

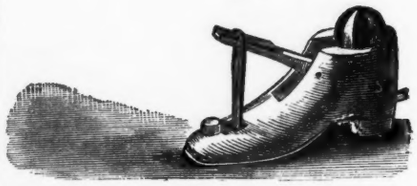
POULTRY WORLD.

A monthly magazine, the oldest, largest, and best periodical devoted entirely to poultry ever published. Splendidly illustrated. $1.25 per year. Also the *American Poultry Yard,* the only weekly paper devoted entirely to poultry in existence. **$1.50 per year.** Both papers for $2.00. A sample copy of both mailed on receipt of nine cents in postage stamps.
Address H. H. STODDARD, HARTFORD, CT.

The New Sheep Dip. Little's Chemical Fluid. Non-poisonous, Non-corrosive. *Copy. Testimonial.* It gives us great pleasure to bear testimony to the merits of "Little's Chemical Fluid," used by us on our Lincoln Herds to destroy the tick. It is the best preparation we ever used for that purpose. We have no hesitation in recommending it to all sheep breeders who wish to rid their herds of tick.—T. WALTERS & SONS, 13th June, 1880, West Chester, Pa.—Address for further testimonials and price, T. W. LAWFORD, General and Wholesale Agent, 296 E. Chase St., Baltimore, Md.

BAT AND TRAP.





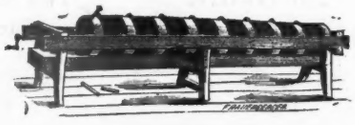
As here represented, the articles necessary to play this game are *one bat, one ball,* and *the trap.* Any number of persons can engage in the game, from one to five on a side, and it can be played by ladies and gentlemen, or girls and boys. It can be played on the lawn, meadow, or any place where baseball, lawn tennis, or croquet are played. The ground need not be smooth as for croquet. It is very fascinating, and has as much variety as any other popular game. **Rules** accompany each game, and they are easily learned.

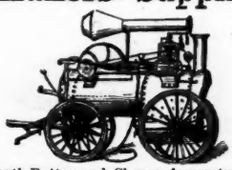
Price, $2.00.

Expressage to be paid by the Recipient.

ORANGE JUDD CO., 245 Broadway, New York.

Creamery Outfits and Butter Makers' Supplies.





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Danish Butter Preserving Extract, Price 50c. per Gallon. Preparation for keeping Skimmed-Milk Cheese from Huffing, when Buttermilk is put back into the Milk. Price 75c. per Gallon.

Send for Circulars on **Creamery** and **Cheese Apparatus,** and **Refrigerator Vat,** for raising Cream. **Cheese-Box Material** furnished complete, ready to put together.

WHITMAN & BURRELL, Little Falls, N. Y.

$10. The Finest Single Breech-Loader in the World. $10.

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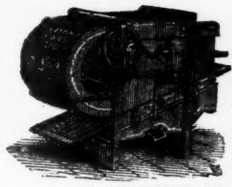

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